INDIAN CERTIFICATE OF SECONDARY EDUCATION EXAMINATION, MARCH 2014
TIMETABLE

DAY & DATE	TIME	SUBJECT	DURATION
Monday March 3	11.00 a.m.	English Language – ENGLISH Paper 1	2 hrs.
Wednesday March 5	11.00 a.m.	Literature in English – ENGLISH Paper 2	2 hrs.
Thursday March 6	11.00 a.m.	(Group II Elective) French / Computer Science / Agricultural Science Technical Drawing	2 hrs. 3 hrs.
Friday March 7	11.00 a.m.	History & Civics - H.C.G. - Paper 1	2 hrs.
Saturday March 8	09.00 a.m.	Art Paper I (Still Life)	3 hrs.
Monday March 10	11.00 a.m.	Mathematics	2½ hrs.
Wednesday March 12	11.00 a.m.	Geography - H.C.G. - Paper 2	2 hrs.
Friday March 14	11.00 a.m	(Group III-Elective) Carnatic Music, Commercial Applications, Computer Applications, Cookery, Drama, Economic Applications, Environmental Applications, Fashion Designing, French, German, Hindustani Music, Home Science, Indian Dance, Physical Education, Portuguese, Spanish, Western Music, Yoga Technical Drawing Applications	2 hrs. 3 hrs.
Saturday March 15	09.00 a.m.	Art Paper II (Nature Drawing/ Painting)	3 hrs.
Tuesday March 18	11.00 a.m	Physics - SCIENCE Paper 1	2 hrs.
Thursday March 20	11.00 a.m.	Chemistry - SCIENCE Paper 2	2 hrs.
Friday March 21	11.00 a.m.	Environmental Science (Group II Elective)	2 hrs.
Saturday March 22	09.00 a.m.	Art Paper III (Original Composition)	3 hrs.
Monday March 24	11.00 a.m.	**Second Languages:** Ao-Naga, Assamese, Bengali, Dzongkha, Garo, Gujarati, Hindi, Kannada, Khasi, Lepcha, Mizo, Malayalam, Manipuri, Marathi, Nepali, Oriya, Sanskrit, Tamil, Tangkhul, Telugu, Urdu **Modern Foreign Languages:** Arabic, Chinese, French, German, Japanese, Kiswahili, Korean, Modern Armenian, Persian, Portuguese, Russian, Spanish, Thai, Tibetan	3 hrs. 3 hrs.
Tuesday March 25	11.00 a.m	Economics (Group II Elective)	2 hrs.
Wednesday March 26	11.00 a.m	Biology - SCIENCE Paper 3	2 hrs.
Thursday March 27	11.00 a.m.	Punjabi	3 hrs.
Friday March 28	11.00 a.m.	Commercial Studies (Group II Elective)	2 hrs.
Saturday March 29	09.00 a.m.	Art Paper IV (Applied Art)	3 hrs.

ENGLISH LANGUAGE
ENGLISH Paper – 1

(Two hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first 15 minutes.*

This time is to be spent in reading the question paper.

***The time** given at the head of this Paper is the time allowed for writing the answers.*

*Attempt **all four** questions.*

***The** intended marks for questions or parts of questions are given in brackets [ ].*

*You are advised to spend not more than 35 minutes in answering **Question 1** and 20 minutes in answering **Question 2.***

Question 1

(Do not spend more than 35 minutes on this question.)   [25]

Write a composition (350 - 400 words) on any *one* of the following:

(a) Write an original short story that begins with the words: "Its not my fault", he shouted…………..".

(b) *'Working women make better mothers than women who stay at home'.* Express your views either *for* or *against* this statement.

(c) Describe an early morning walk through your city or town in winter. Give details of the smells, sights, sounds and feelings you experienced.

(d) Think of a time when you found yourself in an embarrassing situation. Narrate how you got into that situation, how you dealt with it and the lesson you learnt from it.

(e)   Study the picture given below. Write a short story or description or an account of what the picture suggests to you. Your composition may be about the subject of the picture or you may take suggestions from it; however, your composition must have a clear connection with the picture.

Question 2

(Do not spend more than 20 minutes on this question.)

Select *one* of the following: [10]

(a)   Your uncle has promised to give you a gift of ₹1000/-. Write a letter thanking him for the offer, tell him how you plan to spend the money; and why you wish to spend it in this way.

(b)   You are the President of the Nature Club in your school which is hosting the Earth Day Celebrations.   Write a letter to the Principal of a neighbouring school inviting the school to participate in the event. State when, why and how you plan to celebrate Earth Day.

Question 3

Read the following passage carefully and answer the questions that follow:

Richard Parker was so named because of a clerical error.

A panther was terrorizing the Khulna district of Bangladesh, just outside the Sundarbans. It had recently carried off a little girl. She was the seventh person killed in two months by the animal. And it was growing bolder. The previous victim was a man who had been attacked in broad daylight in his field. The beast dragged him off into the forest, and his ***corpse*** was later found hanging   5 from a tree. The villagers kept a watch nearby that night, hoping to surprise the panther and kill it, but it never appeared.

The Forest Department hired a professional hunter. He set up a small, hidden platform in a tree near a river where two of the attacks had taken place. A goat was tied to a stake on the river's bank. The hunter waited several nights. He   10 assumed the panther would be an old, wasted male with worn teeth, incapable of catching anything more difficult than a human. But it was a sleek tiger that stepped into the open one night: a female with a single cub. The goat bleated. Oddly, the cub, who looked to be about three months old, paid little attention to the goat. It raced to the water's edge, where it drank eagerly. Its mother   15 followed it. Of hunger and thirst, thirst is the greater urge. Only once the tiger had ***quenched*** her thirst did she turn to the goat to satisfy her hunger.

The hunter had two rifles with him: one with real bullets, the other with immobilizing darts. This animal was not the man-eater, but so close to human habitation she might pose a threat to the villagers, especially as she was with   20 cub. He picked up the gun with the darts. He fired as the tiger was about to attack the goat. The tiger ***reared*** up and snarled and raced away. But immobilizing darts don't bring on sleep gently- they knock the creature out without warning. A burst of activity on the animal's part makes it act all the faster. The hunter called his assistants on the radio. They found the tiger about   25 two hundred yards from the river. She was still conscious. Her back legs had given way and her balance on her front legs was shaky. When the men got close; she tried to get away but could not manage it. She turned on them, lifting

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3

a paw that was meant to kill. It only made her lose her balance. She collapsed
and the Pondicherry Zoo had two new tigers. The cub was found in a bush   30
close by, meowing with fear.

The hunter, whose name was Richard Parker, picked it up with his bare hands
and, remembering how it had rushed to drink in the river, named it Thirsty. But
the shipping clerk at the Howrah train station was evidently a man both
confused and diligent. All the papers received with the cub clearly stated that   35
its name was Richard Parker, that the hunter's first name was Thirsty and that
his family name was None Given. Richard Parker's name stuck.
I don't know if the hunter was ever called Thirsty None Given!

(a)   Give the meaning of each of the following words as used in the passage.
       One word answers or short phrases will be accepted.

   (i)   *corpse (line 5)*

   (ii)   *quenched (line 17)*

   (iii)   *reared (line 22)*   [3]

(b)   Answer the following questions briefly in your own words.

   (i)   Why does the author say that the panther 'was getting bolder'?   [2]

   (ii)   Why did the Forest Department hire a professional hunter?   [2]

   (iii)   What did the hunter expect to encounter? What did he actually
      encounter?   [2]

   (iv)   What did the tiger do before turning to attack the goat? Why did it
      do that?   [2]

   (v)   Why does the hunter decide to shoot the tiger though he knew it
      was not the man-eater?   [2]

   (vi)   What name did the hunter give to the cub? Why?   [2]

(c)   (i)   In not more than 60 words narrate how the hunter and his assistants
      captured the tiger and her cub.   [8]

   (ii)   Give a suitable title to your summary in 3(c). Give a reason to
      justify your choice.   [2]

Question 4

(a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space.

Example:

(0) From his perch behind the clock, Hugo could (0) _____ (see) everything.

Answer: see.

He rubbed his fingers nervously against the small notebook in his pocket and (1)_____(tell) himself to be patient. The old man in the toy booth (2)_____(argue) with the girl. She (3)_____(be) about Hugo's age and he often saw her go into the booth and (4)_____(disappear) behind the counter. The old man (5)_____(look) agitated today. Had he figured out some of his toys were (6)_____(miss)? Well, there was nothing to be (7)_____(do) about that now. The old man and the girl argued some more and finally she closed her book and (8)_____(run) off. [4]

(b) Fill in the blanks with an appropriate word:

(i) The teacher spoke _____ for Raju when he was wrongly accused of stealing money.

(ii) We can visit her in the hostel _____ 3pm and 5pm on Saturdays.

(iii) The Sinhas have lived in New Delhi _____ 1943.

(iv) Little children are often afraid _____ the dark.

(v) Sneha has applied _____ a scholarship.

(vi) It took Ahmed many months to get _____ the loss of his friend.

(vii) She turned _____ the generous offer made by the manager.

(viii) We were asked to take _____ our footwear as we were entering a place of worship. [4]

(c) Join the following sentences to make one complete sentence **without using** *and*, *but* or *so*.

   (i)   He is good at gymnastics. His handwriting must improve.

   (ii) Her grandfather gifted her a paint box. He knew she was good at art.

   (iii) Ravi fractured his arm. He insisted on playing the match.

   (iv) Mona has been ill for a month. She stood first in the examination.   [4]

(d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence.

   (i)   As soon as we lit the candle, the power supply was restored.

         (Begin: No sooner…………………………………)

   (ii) The bee is more industrious than all other creatures.

         (Use 'most industrious')

   (iii) The old woman was too slow to catch the bus.

         (Begin: The old woman was so ……………)

   (iv) "I'll do it tomorrow," he promised.

         (Rewrite in indirect speech)

   (v)   Though Reema got an expensive gift she was not happy.

         (Begin: Inspite…………………………………...)

   (vi) I prefer reading a book to watching a movie.

         (Begin: I would rather …………………)

   (vii) I have never seen Mr. Roy lose his temper.

         (Begin: Never…)

   (viii) She found your keys in the garage.

         (Begin: The keys……………...)   [8]

LITERATURE IN ENGLISH

ENGLISH Paper – 2·

(Two hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first 15 minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answers.

Attempt five questions in all.

You must attempt one question from each of the Sections A, B and C

and any two other questions.

Intended marks for questions or parts of questions are given in brackets [ ].

SECTION A - DRAMA

As You Like It : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow:

Rosalind:	…Look, here comes the duke.
Celia:	With his eyes full of anger.

[Enter Duke Frederick, with Lords]

Duke Frederick:	Mistress, dispatch you with your safest haste,
	And get you from our court.

(i)   What order does Duke Frederick give Rosalind and what threat does he back it up with?   [3]

(ii)   What reason does the Duke give for sentencing Rosalind? Mention any two arguments Rosalind puts forth to defend herself.   [3]

(iii)   How does the Duke try to poison Celia's mind against Rosalind?   [3]

(iv)   What names do Rosalind and Celia assume for their stay in the forest? Why do they decide to travel in disguise?   [3]

(v)   Provide four instances from the play that highlight the bond of affection between Rosalind and Celia.   [4]

This Paper consists of 6 printed pages.

Question 2.

Read the extract given below and answer the questions that follow:

> Jaques: All the world's a stage,
> And all the men and women merely players:
> They have their exits and their entrances;
> And one man in his time plays many parts ....

(i) What does Jaques compare the world to? What are 'exits' and 'entrances'? [3]

(ii) How many parts do men and women play in the drama of life?

How does Jaques describe the second stage in a man's life? [3]

(iii) What is the fifth stage? Describe this stage. [3]

(iv) What is the last stage? Give a description of it. [3]

(v) How does this scene highlight Jaques' melancholic character?

Who does he join at the end of the play and why? [4]

Loyalties : John Galsworthy

Question 3.

Read the extract given below and answer the questions that follow:

> Lady Adela: Oh! Why did I ever ask that wretch De Levis? I used to think him pathetic. Meg – did you know — Ronald Dancy's coat was wet? The General happened to feel it.
> Margaret: So that's why he was so silent.
> Lady Adela: Yes; and after the scene in the Club yesterday he went to see those bookmakers, and Goole – what a name! — is sure he told Dancy about the sale.
> Margaret: [*Suddenly*] I don't care. He's my third cousin. Don't you feel you *couldn't*, Adela?
> Lady Adela: Couldn't – what?
> Margaret: Stand for De Levis against one of ourselves?

(i) Which 'sale' is Lady Adela talking about? Why does De Levis claim Dancy knew about the sale? [3]

(ii) How does Margaret assess Dancy's character a little later during this conversation? [3]

(iii) Why does Dancy want to go to Nairobi? What is Mable's response? [3]

(iv) Why does De Levis come to Dancy's flat soon after?

What appeal does Mabel make to him? [3]

(v) What were De Levis' reasons for being so stubborn in pursuing the case?

What is his reaction after the charge against Dancy is established? [4]

Question 4.

Read the extract given below and answer the questions that follow:

[The young clerk is ushering in Dancy, whose face is perceptibly harder than it was three months ago, like that of a man who has lived under great restraint]

Dancy: He wanted to see me before the court sat.
Young clerk: Yes, sir. Mr. Twisden will see you in one minute. He had to go out of town last night.
Dancy: Were *you* in the war?

(i) What reply does the clerk give? How is Dancy's attitude towards civilian life different from the clerk's? [3]

(ii) What information does Twisden give Dancy and why does he advise Dancy to go to Morocco? [3]

(iii) What is Colford's reaction when reality comes to light?

How does Margaret offer to help Dancy? [3]

(iv) When Dancy reaches home soon after, why is Mabel surprised to see him?

What plea does she make to the Inspector on the arrival of the police? [3]

(v) How does Dancy commit suicide? Why does he call his death another jump?

What term does Cloford use to describe Dancy's suicide? [4]

SECTION B – POETRY

The Golden Lyre

Question 5.

Read the extract given below and answer the questions that follow:

Neither stones nor prayers nor sticks
Insults or complaints or bricks
Stilled the frog's determination
To display his heart's elation.

But one night a nightingale
In the moonlight cool and pale
Perched upon the sumac tree....

(*The Frog and the Nightingale*: Vikram Seth)

[3]

[3]

[3]

[3]

[4]

[3]

[3]

[3]

[3]

(i) Where did the frog live? Who threw stones at the frog? Why? [3]

(ii) How did the creatures of the bog react to the nightingale's singing? [3]

(iii) How did the frog introduce himself to the nightingale? What claims did he make to impress her? What offer did he make? [3]

(iv) The training given by the frog involved a combination of rigorous practice, harsh scolding and advice. Give any three instances that illustrate the truth of this statement. [3]

(v) How did the frog assess the nightingale's character after her death?
What lessons can be learnt from this poem? [4]

Question 6.

Read the extract given below and answer the questions that follow:

> Let me dive into the depths of time,
>
> And bring from out the ages that have rolled
>
> A few small fragments of those wrecks sublime,
>
> Which human eyes may never more behold;
>
> *(To India – My Native Land* : Henry Derozio)

(i) How does the poet describe the glorious past of his country?
What does he lament? [3]

(ii) Which image conveys the miserable state of the nation? [3]

(iii) Who is a minstrel? What is the minstrel unable to do? [3]

(iv) Explain what the poet wishes to express in these lines:

> 'Let me dive into the depths of time,
>
> And bring from out the ages that have rolled
>
> A few fragments of those wrecks sublime, [3]

(v) What reward does the poet expect for his efforts? What feelings of the poet emerge in this poem? Can you relate with the sentiments of the poet now that India is independent? Give a reason. [4]

SECTION C – PROSE

A Treasure Trove of Short Stories

Question 7.

Read the extract given below and answer the questions that follow:

> For his first job, the postmaster came to the village of Ulapur. It was a very humble village. There was an indigo factory near-by, and the British manager had with much effort established a new post office.
> The postmaster was a Calcutta boy – he was a fish out of water in a village like this.

(i) Why did the postmaster feel out of place in the village of Ulapur? [3]

(ii) Who was Ratan? What memories did she have of her family? [3]

(iii) How did Ratan nurse the postmaster back to health? [3]

(iv) Why did the postmaster decide to resign from his post?

What did Ratan ask him when he told her that he was leaving? [3]

(v) How did Ratan react when the postmaster offered her some money?

Describe her state of mind at the end of the story. [4]

Question 8.

Describe how the locals in 'A Fishy Story' by Jerome K Jerome make up stories to impress the visitors. What is the surprise ending to the story? [16]

Animal Farm : George Orwell

Question 9.

Read the extract given below and answer the questions that follow:

> In the end they finished the harvest in two days less time than it had usually taken Jones and his men. Moreover it was the biggest harvest that the farm had ever seen. There was no wastage whatever; the hens and ducks with their sharp eyes had gathered up the very last stalk. And not an animal on the farm had stolen so much as a mouthful.
> All through that summer the work of the farm went like clockwork. The animals were happy as they had never conceived it possible to be.

(i) What problems did the animals face in the beginning? What work did the pigs do? [3]

(ii) Give any three examples of how the animals worked together in harmony to take care of the farm. [3]

(iii) What was the colour of the flag that was hoisted every Sunday?

What design did it have? What was the significance of the design? [3]

(iv) Name three Animal Committees that Snowball organized. [3]

(v) Point out the differences in the characters of Snowball and Napoleon.

Cite instances to support your answer. [4]

Question 10.

How did Frederick trick the animals? Give a detailed account of the Battle of the Windmill which was fought between the animals and Frederick and his men. [16]

To Sir, With Love : E.R. Braithwaite
Question 11.

Read the extract given below and answer the questions that follow: .

> The Half-Yearly report of the Students' Council was on November 15, and was one of the important days in the calendar of Greenslade School. I had heard quite a deal about these occasions and became as excited as the children as the day approached. It was entirely their day, arranged, presented and controlled by them. I observed the activities of my class as they prepared for it, noting with pride the business-like way in which tasks were allocated and fitted into a neat programme.

(i) What explanation of the Council's purpose and activities did Miss Joseph present? [3]

(ii) Why did Fernman display a skeleton during his presentation? [3]

(iii) What aspects of the school's curriculum did Denham criticize in his report? [3]

(iv) How many teachers were called on stage to answer the questions of the students? What does Braithwaite say in praise of the manner in which Miss Phillips answered the questions? [3]

(v) Why did Weston cut a very ridiculous figure? Why did Denham consider P.T. to be a waste of time? [4]

Question 12.

Describe Braithwaite's experiences on his first day as a teacher at Greenslade School. [16]

HISTORY & CIVICS

H.C.G. - Paper – 1

(Two Hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first **15** minutes.*

This time is to be spent in reading the question paper.

***The time** given at the head of this Paper is the time allowed for writing the answers.*

***Attempt** all questions from **Part I** (Compulsory). A total of **five questions** are to be attempted from **Part II**, **two** out of **three questions** from Section A and **three** out of **five** questions from Section **B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

PART I (30 Marks)

*Attempt **all questions** from this Part*

Question 1

(a)	Who administers the oath of office to the Council of Ministers?	[1]
(b)	Why is the Rajya Sabha called a 'Permanent house'?	[1]
(c)	State the minimum number of times the Lok Sabha must meet in a year.	[1]
(d)	State the composition of the Electoral College in the election of the President of India.	[1]
(e)	What is an 'Ordinance'? When can it be passed?	[1]
(f)	Mention one way by which the authority of the Prime Minister can be checked?	[1]
(g)	What is understood by the term 'Individual Responsibility' in a Parliamentary Democracy?	[1]
(h)	What is meant by a 'Single Integrated Judicial System' as provided in the Indian Constitution?	[1]
(i)	What is the 'Appellate Jurisdiction' of the High Court?	[1]

This Paper consists of 4 printed pages.

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Turn over

(j)   State one point of distinction between the District Judge and the Sessions Judge.   [1]

Question 2

(a)   State any *two* political causes responsible for the First War of Independence.   [2]

(b)   What was the role of the press in promoting nationalistic sentiments amongst the Indians?   [2]

(c)   Mention *two* important contributions of Lala Lajpat Rai.   [2]

(d)   What were the *two* basic reasons responsible for the Surat Split in 1907 between the Early Nationalists and the Assertive Nationalists?   [2]

(e)   Mention any *one* provision *each* of the Gandhi–Irwin Pact signed in 1931.   [2]

(f)   State *two* important objectives of the Indian National Army.   [2]

(g)   Name the three members of the Cabinet Mission.   [2]

(h)   Mention any *two* terms of the Treaty of Versailles signed on June 28, 1919.   [2]

(i)   State *two* factors which were responsible for the failure of the League of Nations.   [2]

(j)   Mention *two* functions of the General Assembly.   [2]

PART II (50 Marks)

SECTION A

*Attempt any **two** questions from this Section*

Question 3

With reference to the Indian Parliament, explain the following:

(a)   The tenure of the members of the Lok Sabha and the Rajya Sabha.   [2]

(b)   The composition of the Lok Sabha and the Rajya Sabha.   [4]

(c)   Its powers to make laws on subjects mentioned in the

    (i)   Union List

    (ii)   Concurrent List.   [4]

Question 4

The Cabinet holds a pivotal position in the working of the Indian Parliamentary Government. In this context discuss the following:

(a) The formation of the Cabinet. [2]

(b) Any *two* administrative powers of the Cabinet. [4]

(c) Any *two* legislative powers of the Cabinet. [4]

Question 5

With reference to the Supreme Court, explain its functions stated below:

(a) Original Jurisdiction. [3]

(b) Advisory Function. [3]

(c) As a guardian of Fundamental Rights. [4]

SECTION B

*Attempt any **three** questions from this Section*

Question 6

The establishment of the Indian National Congress led to the development of the National Movement in India. In this context answer the following:

(a) When was the Indian National Congress established? Who presided over its first session? [2]

(b) What were the four aims of the Congress? [4]

(c) Mention *four* basic beliefs of the Early Nationalists. [4]

Question 7

In the Nagpur session, 1920, the Congress ratified the resolution to launch the Non-Cooperation movement under the leadership of Gandhiji. In this context:

(a) What do you understand by the term Non-Cooperation? [2]

(b) What were the objectives which the movement sought to achieve? [3]

(c) Explain the impact of the Non-Cooperation movement in India's struggle for freedom. [5]

Question 8

With reference to the picture given above answer the following:

(a)   Identify the Viceroy in the picture.   [1]

(b)   Why was he sent to India?   [2]

(c)   How did he plan to solve the communal problem existing in India?   [2]

(d)   Why did the Congress accept *the Plan*? State *three* reasons to justify its
        acceptance.   [5]

Question 9

With reference to the causes of the Second World War answer the following:

(a)   (i)   Explain how the ideologies of Fascism and Nazism led to the Second
                World War.   [3]

        (ii)   How did the Japanese invasion of China create conditions for the
                outbreak of the war?   [3]

(b)   Explain the consequences of the war with reference to the formation of the
        United Nations.   [4]

Question 10

With reference to the Non-Aligned Movement, explain the following:

(a)   'Non-Alignment'.   [2]

(b)   Two factors responsible for its formation.   [4]

(c)   Role of Pt. Jawaharlal Nehru.   [4]

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MATHEMATICS

(Two hours and a half)

*Answers to this Paper **must** be written on the paper provided separately.*

*You will **not** be **allowed** to write during the first 15 minutes.*

*This time is **to be** spent in reading the question paper.*

The time given at the head of this Paper is the time allowed for writing the answers.

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*Attempt all questions from **Section A** and any four questions from **Section B**.*

***All working**, including rough work, **must** be clearly shown and must be done on the same sheet as the rest of the answer.*

Omission of essential working will result in loss of marks.

The intended marks for questions or parts of questions are given in brackets [ ].

Mathematical tables are provided.

SECTION A (40 Marks)

*Attempt **all** questions from this Section.*

Question 1

(a) Ranbir borrows ₹ 20,000 at 12% per annum compound interest. If he repays ₹ 8400 at the end of the first year and ₹ 9680 at the end of the second year, find the amount of loan outstanding at the beginning of the third year. [3]

(b) Find the values of x, which satisfy the inequation

$$-2\frac{5}{6} < \frac{1}{2} - \frac{2x}{3} \le 2, \ x \ \varepsilon \ W.$$ Graph the solution set on the number line. [3]

(c) A die has 6 faces marked by the given numbers as shown below:

| 1 | 2 | 3 | −1 | −2 | −3 |
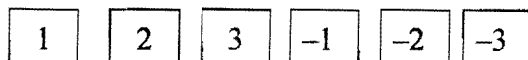
The die is thrown once. What is the probability of getting

(i) a positive integer.

(ii) an integer greater than −3.

(iii) the smallest integer. [4]

Question 2

(a) Find x, y if $\begin{bmatrix} -2 & 0 \\ 3 & 1 \end{bmatrix}\begin{bmatrix} -1 \\ 2x \end{bmatrix} + 3\begin{bmatrix} -2 \\ 1 \end{bmatrix} = 2\begin{bmatrix} y \\ 3 \end{bmatrix}$. [3]

(b) Shahrukh opened a Recurring Deposit Account in a bank and deposited ₹800 per month for 1 ½ years. If he received ₹15,084 at the time of maturity, find the rate of interest per annum. [3]

(c) Calculate the ratio in which the line joining A(-4, 2) and B(3, 6) is divided by point P(x, 3). Also find (i) x (ii) Length of AP. [4]

Question 3

(a) Without using trigonometric tables, evaluate

$\sin^2 34° + \sin^2 56° + 2 \tan 18° \tan 72° - \cot^2 30°$ [3]

(b) Using the Remainder and Factor Theorem, factorise the following polynomial:

$x^3 + 10 x^2 - 37x + 26.$ [3]

(c) In the figure given below, ABCD is a rectangle. AB = 14cm, BC = 7cm. From the rectangle, a quarter circle BFEC and a semicircle DGE are removed. Calculate the area of the remaining piece of the rectangle.(Take $\pi = 22/7$)
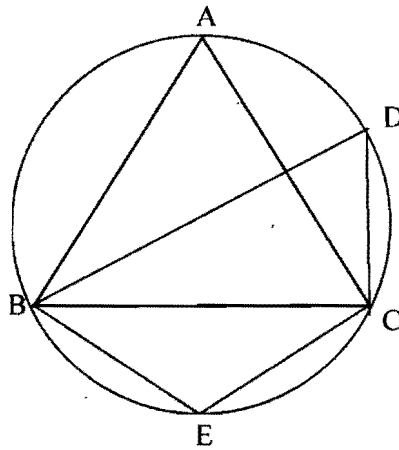

[4]
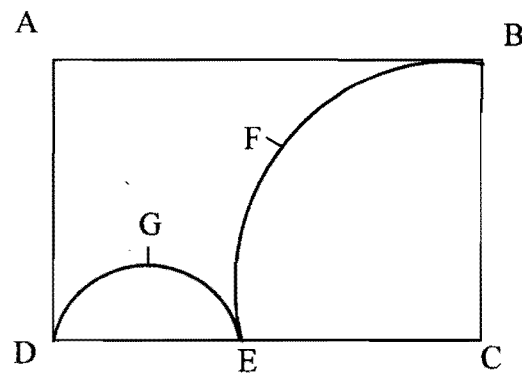
Question 4

(a) The numbers 6, 8, 10, 12, 13, and x are arranged in an ascending order. If the mean of the observations is equal to the median, find the value of x. [3]

2

T14 511

(b) In the figure, $\angle DBC = 58°$. BD is a diameter of the circle. Calculate:

(i) $\angle BDC$

(ii) $\angle BEC$

(iii) $\angle BAC$

[3]

(c) Use graph paper to answer the following questions. (Take 2cm = 1 unit on both axis)

(i) Plot the points A(- 4, 2) and B(2, 4)

(ii) A′ is the image of A when reflected in the y-axis. Plot it on the graph paper and write the coordinates of A′.

(iii) B′ is the image of B when reflected in the line AA′. Write the coordinates of B′ .

(iv) Write the geometric name of the figure ABA′B′.

(v) Name a line of symmetry of the figure formed. [4]

SECTION B (40 Marks)

*Attempt any **four** questions from this Section*

Question 5

(a) A shopkeeper bought a washing machine at a discount of 20% from a wholesaler, the printed price of the washing machine being ₹18,000. The shopkeeper sells it to a consumer at a discount of 10% on the printed price. If the rate of sales tax is 8%, find:

(i) the VAT paid by the shopkeeper.

(ii) the total amount that the consumer pays for the washing machine. [3]

3

(b)   If $\dfrac{x^2 + y^2}{x^2 - y^2} = \dfrac{17}{8}$, then find the value of:

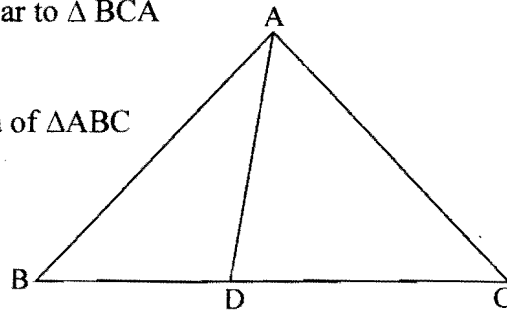(i) $x : y$

(ii) $\dfrac{x^3 + y^3}{x^3 - y^3}$ [3]

(c)   In $\triangle ABC$, $\angle ABC = \angle DAC$. $AB = 8cm$, $AC = 4cm$, $AD = 5cm$.

(i)   Prove that $\triangle ACD$ is similar to $\triangle BCA$

(ii)   Find BC and CD

(iii)   Find area of $\triangle ACD$: area of $\triangle ABC$

[4]

Question 6

(a)   Find the value of 'a' for which the following points A(a, 3), B (2, 1) and C(5, a) are collinear. Hence find the equation of the line.   [3]

(b)   Salman invests a sum of money in ₹ 50 shares, paying 15% dividend quoted at 20% premium. If his annual dividend is ₹ 600, calculate:

(i)   the number of shares he bought.

(ii)   his total investment.

(iii)   the rate of return on his investment.   [3]

(c)   The surface area of a solid metallic sphere is 2464 cm². It is melted and recast into solid right circular cones of radius 3.5cm and height 7cm. Calculate:

(i)   the radius of the sphere.

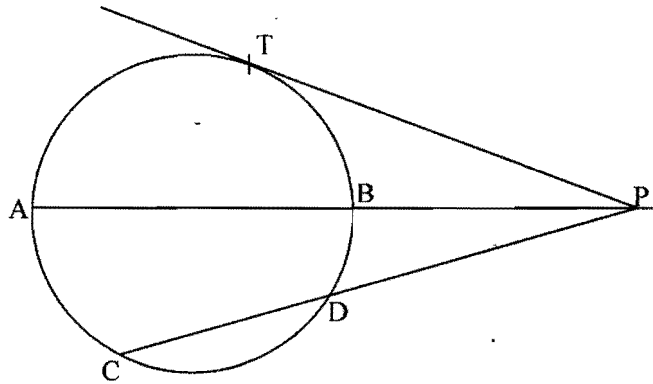(ii)   the number of cones recast.   (Take $\pi = 22/7$)   [4]

Question 7

(a)   Calculate the mean of the distribution given below using the short cut method.

Marks	11-20	21-30	31-40	41-50	51-60	61-70	71-80
No. of students	2	6	10	12	9	7	4

[3]

(b) In the figure given below, diameter AB and chord CD of a circle meet at P. PT is a tangent to the circle at T. CD = 7.8cm, PD = 5cm, PB = 4cm. Find:

(i)   AB.

(ii)   the length of tangent PT.

[3]

(c) Let $A = \begin{bmatrix} 2 & 1 \\ 0 & -2 \end{bmatrix}$, $B = \begin{bmatrix} 4 & 1 \\ -3 & -2 \end{bmatrix}$ and $C = \begin{bmatrix} -3 & 2 \\ -1 & 4 \end{bmatrix}$.

Find $A^2 + AC - 5B$.

[4]

Question 8

(a) The compound interest, calculated yearly, on a certain sum of money for the second year is ₹1320 and for the third year is ₹1452. Calculate the rate of interest and the original sum of money.   [3]

(b) Construct a △ ABC with BC= 6.5 cm, AB= 5.5 cm, AC=5 cm. Construct the incircle of the triangle. Measure and record the radius of the incircle.   [3]

(c) (Use a graph paper for this question.)   The daily pocket expenses of 200 students in a school are given below:

Pocket expenses (in ₹)	Number of students (frequency)
0 – 5	10
5 – 10	14
10 – 15	28
15 – 20	42
20 – 25	50
25 – 30	30
30 – 35	14
35 – 40	12

Draw a histogram representing the above distribution and estimate the mode from the graph. [4]

Question 9

(a) If $(x - 9) : (3x + 6)$ is the duplicate ratio of $4 : 9$, find the value of x. [3]

(b) Solve for x using the quadratic formula. Write your answer correct to two significant figures. $(x - 1)^2 - 3x + 4 = 0$. [3]

(c) A page from the savings bank account of Priyanka is given below:

Date	Particulars	Amount withdrawn (₹)	Amount deposited (₹)	Balance (₹)
03/04/2006	B/F			4000.00
05/04/2006	By cash		2000.00	6000.00
18/04/2006	By cheque		6000.00	12000.00
25/05/2006	To cheque	5000.00		7000.00
30/05/2006	By cash		3000.00	10000.00
20/07/2006	By self	4000.00		6000.00
10/09/2006	By cash		2000.00	8000.00
19/09/2006	To cheque	1000.00		7000.00

If the interest earned by Priyanka for the period ending September, 2006 is ₹ 175, find the rate of interest. [4]

Question 10

(a) A two digit positive number is such that the product of its digits is 6. If 9 is added to the number, the digits interchange their places. Find the number. [4]

(b) The marks obtained by 100 students in a Mathematics test are given below:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No of students	3	7	12	17	23	14	9	6	5	4

Draw an ogive for the given distribution on a graph sheet.

Use a scale of 2cm = 10 units on both axis).

6

ogive to estimate the:

median.

lower quartile.

number of students who obtained more than 85% marks in the test.

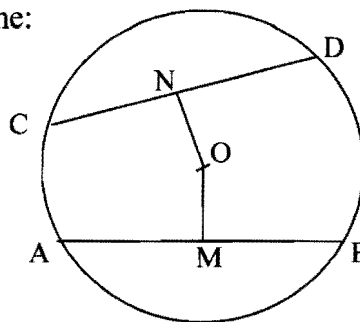number of students who did not pass in the test if the pass percentage was 35. [6]

[4]

[3]

[3]

the figure given below, O is the centre of the circle. AB and CD are two chords of the circle. OM is perpendicular to AB and ON is perpendicular to CD.

If OM = 5cm, ON = 12cm. Find the:

radius of the circle.

length of chord CD. [3]

the identity

$(\sin\theta + \cos\theta)(\tan\theta + \cot\theta) = \sec\theta + \csc\theta.$ [3]

An aeroplane at an altitude of 250 m observes the angle of depression of two boats on the opposite banks of a river to be 45° and 60° respectively. Find the width of the river. Write the answer correct to the nearest whole number. [4]

[4]

[4]

GEOGRAPHY

H.C.G. - Paper – 2

(Two hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first **15** minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

---

*Attempt **seven** questions in all.*

***Part I* is *compulsory*. *All questions* from *Part I* are to be attempted.**

*A total of **five** questions are to be attempted from Part **II**.*

The intended marks for questions or parts of questions are given in brackets [ ].

---

*To be supplied with this Paper: Survey of India Map Sheet No. **45D/10***

and 20 cm of twine.

Note:

(i) *In all Map Work, by a wise use of arrows to indicate positions of countries, cities and other insertions that you make, you will be able to avoid overcrowding parts of the map.*

(ii) *The extract of Survey of India Map Sheet No. **45D/10** must not be taken out of the examination hall. It must be handed over to the Supervising Examiner on completion of the Paper.*

(iii) *The Map given at the end of this question paper must be fastened to your answer booklet.*

(iv) *All sub-sections of each question must be answered in the correct serial order.*

(v) *All working including rough work should be done on the same answer sheet as the rest of the answer.*

This Paper consists of 7 printed pages and 1 outline map.

Turn over

PART I (30 Marks)

*Attempt **all** questions from this **Part***

Question 1

Study the extract of the Survey of India Map sheet No. **45D/10** and answer the following questions:

(a) (i) Give the four figure grid reference of the settlement of Hamirpura.

    (ii) Give the six figure grid reference of the temple in the settlement of Jolpur. [2]

(b) (i) What does the blue coloured circle in the grid square 0619 represent?

    (ii) What is the compass direction of Dantrai from Jolpur? [2]

(c) What is the difference between the:

    (i) pattern of settlements in 0725 and the settlement of Idarla?

    (ii) drainage pattern of the streams in 0624 and those in 0824? [2]

(d) What is the value of the contour line in square 0226? What is the contour interval in the map? [2]

(e) Mention any *two* factors which provide evidence that the region in the map extract is a rural region. [2]

(f) (i) How does the feature, indicated by the black curves in 0721, show that rainfall in this region is seasonal?

    (ii) Mention one man-made feature in the map which also provides evidence that the rainfall is seasonal. [2]

(g) (i) Name *two* natural features in 0527.

    (ii) Name *two* manmade features in 0325. [2]

(h) Name *two* features which make Dantrai a more important settlement than the other settlements in the map extract. [2]

(i) Calculate the area of the region which lies to the south of northing 21 in square kilometres. [2]

(j) What are the following?

    (i) The black vertical line between eastings 09 and 10.

    (ii) 302 in grid square 0425. [2]

2

Question 2

On the outline map of India provided:

(a) Draw, name and number the *Standard Meridian*. [1]

(b) Label the river *Yamuna*. [1]

(c) Shade and name the *Gulf of Khambhat*. [1]

(d) Mark and name the *Nathu-La Pass*. [1]

(e) Mark and name the *Karakoram Range*. [1]

(f) Shade and name a *sparsely populated State* in Northeast India. [1]

(g) Shade a region with *laterite soil* in Eastern India. [1]

(h) Mark with a dot and name *Vishakhapatnam*. [1]

(i) Mark and name *the winds* that bring rain to West Bengal in summer. [1]

(j) Print **S** on the *iron mines in Singhbhum*. [1]

PART II (50 Marks)

*Attempt **any five** questions from **this Part***

Question 3

(a) Mention the different sources of rain in Punjab and Tamil Nadu during the winter season. [2]

(b) State the benefits that are derived from the local winds that blow in summer in the following states:

   (i) Kerala

   (ii) West Bengal. [2]

(c) Mention a geographical reason for each of the following:

   (i) Patna receives heavier rain than Delhi.

   (ii) Western Rajasthan receives no rain from the Arabian Sea branch of the South West Monsoon winds.

   (iii) Mangalore is not cold even in the month of December. [3]

(d) Study the climatic data given below and answer the questions that follow:

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
°C	25.0	25.5	26.3	27.1	30.0	36.2	36.0	35.9	30.3	28.4	27.0	24.6
Cm	24.5	23.1	15.0	2.4	0.1	11.0	9.3	7.2	4.0	9.4	14.5	20.4

(i) Calculate the annual temperature range.

(ii) What is the total annual rainfall?

(iii) Presuming that the station is located in India, give a reason for its location being on the east coast or the west coast of India. [3]

Question 4

(a) State any *two* methods of controlling soil erosion. [2]

(b) Mention *two* differences between alluvial soil and red soil. [2]

(c) Give a geographical reason for:

(i) different regions in India having different kinds of soil.

(ii) black soil being suitable for growth of cotton.

(iii) the conservation of soil as a natural resource. [3]

(d) Name the soil which —

(i) is good for the cultivation of cashew nuts.

(ii) covers almost all of West Bengal.

(iii) is a result of leaching. [3]

Question 5

(a) Write *two* reasons why monsoon deciduous forests are commercially more valuable than other types of forests. [2]

(b) How do forests —

(i) have a favourable effect on the climate of the region?

(ii) act as a flood control measure? [2]

(c) Give *one* important use of each of the following types of trees:

(i) Sundri.

(ii) Sandalwood.

(iii) Rosewood. [3]

(d) Name the natural vegetation largely found in the following regions:

    (i)   The delta of the Ganga river.

    (ii)   The windward side of the Western Ghats.

    (iii)   The Deccan Plateau. [3]

Question 6

(a)   State *two* reasons why tank irrigation is popular in South India. [2]

(b)   Mention *two* advantages that surface wells have over inundation canals. [2]

(c)   Give *one* geographical reason for each of the following statements:

    (i)   Irrigation is necessary despite the monsoon.

    (ii)   The drip method of irrigation is the best among all modern methods of irrigation.

    (iii)   Canal irrigation leads to the ground around it becoming unproductive. [3]

(d)   Give *three* reasons for conservation of water resources. [3]

Question 7

(a)   Mention any *two* uses of manganese. [2]

(b)   Which of the different varieties of coal is used for domestic purposes and why? [2]

(c)   Name the mineral used in the manufacture of:

    (i)   Cement

    (ii)   Aluminium

    (iii)   Synthetics. [3]

(d)   Which State is the leading producer of the following minerals?

    (i)   Coal

    (ii)   Oil

    (iii)   Manganese. [3]

Question 8

(a)   How has poverty and fragmentation of land become problems of agricultural India? [2]

(b)   Mention any *two* features of plantation farming stating *two* examples. [2]

(c)   Mention *three* differences in the geographical conditions and cultivation of rice and wheat.   [3]

(d)   Give a geographical reason for each of the following:

    (i)   Cotton grows widely in Maharashtra.

    (ii)   Clonal planting is the best method for tea propagation.

    (iii)   Oilseeds are an important commercial crop grown in India.   [3]

Question 9

(a)   Name *two* textile industries using any animal fibres. Name an important State where these industries are located.   [2]

(b)   Give *two* reasons for each of the following:

    (i)   Kolkata is an important cotton manufacturing centre even though West Bengal is not a leading producer of cotton.

    (ii)   The wool industry is not as well developed as compared to the cotton industry in India.   [2]

(c)   Mention *three* problems of the jute textile industry in India.   [3]

(d)   Mention *three* factors that have helped the sugar industry flourish in the peninsular region rather than in the northern regions of India.   [3]

Question 10

(a)   Name *one* integrated iron and steel plant in the private sector.
Where does it obtain its iron and coal from?   [2]

(b)   Name *two* raw materials used in the petrochemical industry and state *two* advantages of petrochemical products.   [2]

(c)   Give a reason for each of the following:

    (i)   Vishakhapatnam is a leading centre for ship-building.

    (ii)   Mini steel plants cause less pollution than integrated steel plants.

    (iii)   The electronic industry has made an impact on both entertainment and education.   [3]

(d) Name a manufacturing centre for each of the following industries:

(i) Engines for MIG aircraft

(ii) Diesel locomotives

(iii) Software. [3]

Question 11

(a) Why is road transport in India considered more useful than rail transport?

State *two* reasons in support of your answer. [2]

(b) Mention *one* advantage and *one* disadvantage each of inland waterways. [2]

(c) How does waste accumulation affect the environment? [3]

(d) What is acid rain? Mention *two* of its effects. [3]

T14 502

Name ....Index No. ....

(This map, if used, must be fastened with all other answers)

Map of India for Question 2.
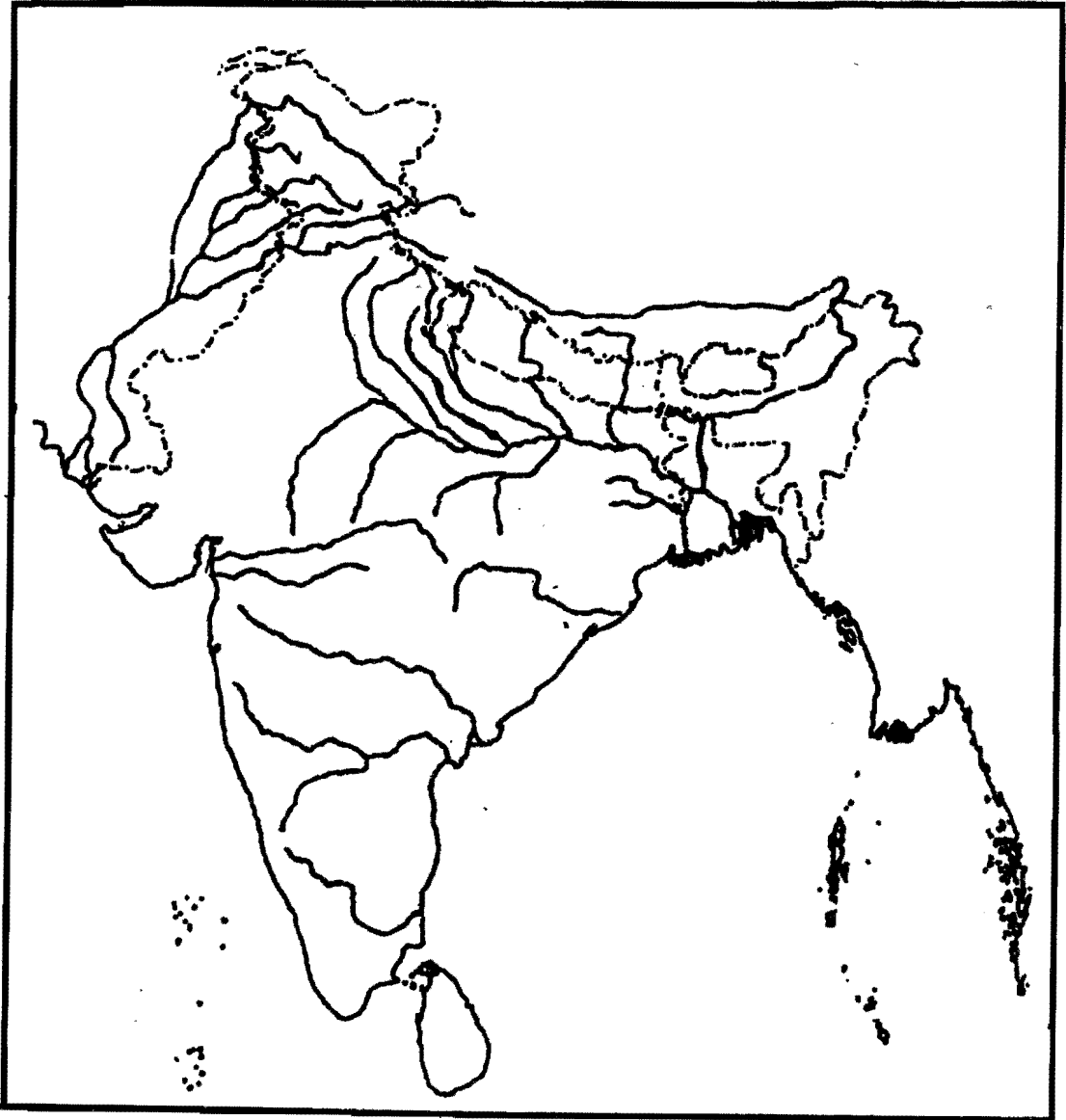
ONLY FOR THE EXAMINER									
a	b	c	d	e	f	g	h	i	j

T14 502

COMPUTER APPLICATIONS

(Theory)

(Two Hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first 15 minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

This Paper is divided into two Sections.

*Attempt **all** questions from **Section A** and **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets[].

SECTION A (40 Marks)

*Attempt **all** questions*

Question 1.

(a) Which of the following are valid comments?
(i)/* comment */
(ii)/* comment
(iii)// comment
(iv)*/ comment */ [2]

(b) What is meant by a package? Name any two Java Application Programming Interface packages. [2]

(c) Name the primitive data type in Java that is:

(i) a 64-bit integer and is used when you need a range of values wider than those provided by *int*.

(ii) a single 16-bit Unicode character whose default value is '\u0000'. [2]

(d) State one difference between the floating point literals *float* and *double*. [2]

Turn over

(e)   Find the errors in the given program segment and re-write the statements correctly to assign values to an integer array.

```
int a = new int(5);
for(int i=0;i<=5;i++) a[i]=i;                                    [2]
```

Question 2.

(a)   Operators with higher precedence are evaluated before operators with relatively lower precedence. Arrange the operators given below in order of higher precedence to lower precedence.

      (i) &&   (ii) %   (iii) >=   (iv) ++   [2]

(b)   Identify the statements listed below as assignment, increment, method invocation or object creation statements.

    (i)   System.out.println("Java");

    (ii)   costPrice = 457.50;

    (iii)   Car hybrid = new Car();

    (iv)   petrolPrice++;   [2]

(c)   Give two differences between the *switch* statement and the *if-else* statement.   [2]

(d)   What is an infinite loop? Write an infinite loop statement.   [2]

(e)   What is a constructor? When is it invoked?   [2]

Question 3.

(a)   List the variables from those given below that are composite data types.

    (i) static int x;   (iv) boolean b;

    (ii) arr[i]=10;   (v) private char chr;

    (iii) obj.display();   (vi) String str;   [2]

(b)   State the output of the following program segment:

```
String str1= "great"; String str2= "minds";
System.out.println(str1.substring(0,2).concat(str2.substring(1)));
System.out.println(("WH"+(str1.substring(2).toUpperCase())));       [2]
```

(c) What are the final values stored in variables x and y below?

```
double a = - 6.35;
double b = 14.74;
double x = Math.abs(Math.ceil(a));
double y = Math.rint(Math.max(a,b));
```
[2]

(d) Rewrite the following program segment using *if-else* statements instead of the ternary operator.

```
String grade=(mark>=90) ? "A" : (mark>=80) ? "B" : "C";
```
[2]

(e) Give the output of the following method:

```
public static void main(String[] args){
int a = 5;
a++;
System.out.println(a);
a-=(a--) - (--a);
System.out.println(a);  }
```
[2]

(f) What is the data type returned by the library functions:
   (i)   compareTo()
   (ii) equals()
[2]

(g) State the value of **characteristic** and **mantissa** when the following code is executed.

```
String s = "4.3756";
  int n = s.indexOf('.');
int characteristic=Integer.parseInt(s.substring(0,n));
int mantissa=Integer.valueOf(s.substring(n+1));
```
[2]

(h) Study the method and answer the given questions.

```
public void sampleMethod()
    {       for(int i=0;i<3;i++)
                {    for(int j=0;j<2;j++)
                            {int number = (int)(Math.random() * 10);
                            System.out.println(number);      }}}
```

   (i)   How many times does the loop execute?

3

(ii) What is the range of possible values stored in the variable *number*? [2]

(i) Consider the following class:
```
public class myClass {
public static int x=3, y=4;
public int a=2, b = 3;  }
```
   (i) Name the variables for which each object of the class will have its own distinct copy.

   (ii) Name the variables that are common to all objects of the class. [2]

(j) What will be the output when the following code segments are executed?

   (i)
```
String s="1001";
int x=Integer.valueOf(s);
double y=Double.valueOf(s);
System.out.println("x="+x);
System.out.println("y="+y);
```

   (ii) `System.out.println("The king said \"Begin at the beginning!\" to me.");` [2]

SECTION B (60 Marks)

Attempt *any four* questions from this Section.

*The answers in this Section should consist of the **Programs in either Blue J environment** or any program environment with Java as the base.*

*Each program should be written using **Variable descriptions/Mnemonic Codes** so that the logic of the program is clearly depicted.*

*Flow-Charts and Algorithms **are not required.***

Question 4.

Define a class named **movieMagic** with the following description:

Instance variables/data members:

int year   -   to store the year of release of a movie

String title   -   to store the title of the movie

float rating   -   to store the popularity rating of the movie

(minimum rating=0.0 and maximum rating=5.0)

Member methods:

(i) movieMagic()   Default constructor to initialize numeric data members to 0 and String data member to "".

(ii) void accept()   To input and store year, title and rating.

(iii) void display()   To display the title of a movie and a message based on the rating as per the table below.

Rating	Message to be displayed
0.0 to 2.0	Flop
2.1 to 3.4	Semi-hit
3.5 to 4.5	Hit
4.6 to 5.0	Super Hit

Write a main method to create an object of the class and call the above member methods.   [15]

Question 5.

A special two-digit number is such that when the sum of its digits is added to the product of its digits, the result is equal to the original two-digit number.

Example: Consider the number 59.

Sum of digits = 5 + 9 = 14

Product of its digits = 5 × 9 = 45

Sum of the sum of digits and product of digits = 14 + 45 = 59

Write a program to accept a two-digit number. Add the sum of its digits to the product of its digits. If the value is equal to the number input, output the message "Special 2-digit number" otherwise, output the message "Not a special 2-digit number".   [15]

Question 6.

Write a program to assign a full path and file name as given below. Using library functions, extract and output the file path, file name and file extension separately as shown.

Input   C:\Users\admin\Pictures\flower.jpg

Output   Path: C:\Users\admin\Pictures\

File name: flower

Extension: jpg   [15]

5

Question 7.

Design a class to overload a function area( ) as follows:

(i) double area(double a, double b, double c) with three double arguments, returns the area of a scalene triangle using the formula:

$$area = \sqrt{s(s-a)(s-b)(s-c)}$$

where $s = \dfrac{a+b+c}{2}$

(ii) double area(int a, int b, int *height*) with three integer arguments, returns the area of a trapezium using the formula:

$$area = \frac{1}{2}\,height(a+b)$$

(iii) double area(double *diagonal1*, double *diagonal2*) with two double arguments, returns the area of a rhombus using the formula:

$$area = \frac{1}{2}\ (diagonal1 \times diagonal2)$$ [15]

Question 8.

Using the switch statement, write a menu driven program to calculate the maturity amount of a Bank Deposit.

The user is given the following options:

      (i)   Term Deposit

      (ii)   Recurring Deposit

For option (i) accept principal(P), rate of interest(r) and time period in years(n). Calculate

and output the maturity amount(A) receivable using the formula $A = P\left[1+\dfrac{r}{100}\right]^{n}$

For option (ii) accept Monthly Installment (P), rate of interest(r) and time period in months (n). Calculate and output the maturity amount(A) receivable using the formula

$$A = P \times n + P \times \frac{n(n+1)}{2} \times \frac{r}{100} \times \frac{1}{12}$$

For an incorrect option, an appropriate error message should be displayed.   [15]

6

Question 9.

Write a program to accept the year of graduation from school as an integer value from the user. Using the Binary Search technique on the sorted array of integers given below, output the message "Record exists" if the value input is located in the array. If not, output the message "Record does not exist".

{1982, 1987, 1993, 1996, 1999, 2003, 2006, 2007, 2009, 2010}   [15]

[15]

[15]

[15]

PHYSICS

SCIENCE Paper – 1

(Two hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first 15 minutes.*

This time is to be spent in reading the Question Paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Section I** is compulsory. Attempt **any four** questions from **Section II.

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION I (40 Marks)

*Attempt **all** questions from this Section.*

Question 1

(a)   A force is applied on (i) a non-rigid body and (ii) a rigid body. How does the effect of the force differ in the above two cases?   [2]

(b)   A metallic ball is hanging by a string from a fixed support. Draw a neat labelled diagram showing the forces acting on the ball and the string.   [2]

(c)   (i)   What is the weight of a body placed at the centre of the earth?

      (ii)   What is the principle of an ideal machine?   [2]

(d)   Is it possible to have an accelerated motion with a constant speed? Explain.   [2]

(e)   (i)   When does a force do work?

      (ii)   What is the work done by the moon when it revolves around the earth?   [2]

Question 2

(a)   Calculate the change in the Kinetic energy of a moving body if its velocity is reduced to $1/3^{rd}$ of the initial velocity.   [2]

(b)   State the energy changes in the following devices while in use:

      (i)   A loud speaker.

      (ii)   A glowing electric bulb.   [2]

This Paper consists of 6 printed pages.

(c) (i)   What is nuclear energy?

     (ii)   Name the process used for producing electricity using nuclear energy.   [2]

(d) State one important advantage and disadvantage each of using nuclear energy for producing electricity.   [2]

(e) (i)   The conversion of part of the energy into an undesirable form is called

         _____ .

     (ii)   For a given height h, _____ the length l of the inclined plane, lesser will be the effort required.   [2]

Question 3

(a) Draw the diagram given below and clearly show the path taken by the emergent ray.
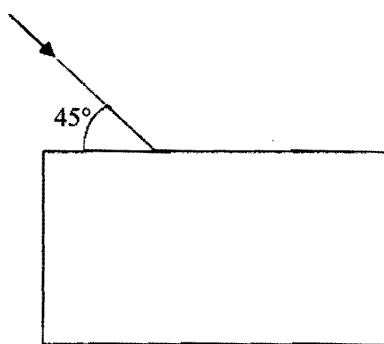

                                                                       [2]

(b) (i)   What is consumed using different electrical appliances, for which electricity bills are paid?

     (ii)   Name a common device that uses electromagnets.   [2]

(c) (i)   A ray of light passes from water to air. How does the speed of light change?

     (ii)   Which colour of light travels fastest in any medium except air?   [2]

(d) Name the factors affecting the critical angle for the pair of media.   [2]

(e) (i)   Name a prism required for obtaining a spectrum of Ultraviolet light.

     (ii)   Name the radiations which can be detected by a thermopile.   [2]

Question 4

(a) Why is the colour red used as a sign of danger?   [2]

(b) (i)   What are mechanical waves?

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(ii) Name one property of waves that do not change when the wave passes from one medium to another. [2]

(c) Find the equivalent resistance between points A and B
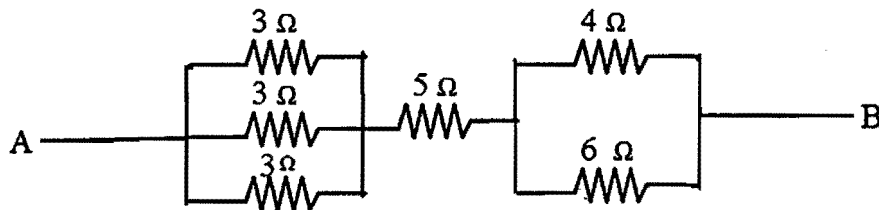
[2]

(d) 50 g of metal piece at 27 °C requires 2400 J of heat energy so as to attain a temperature of 327 °C. Calculate the specific heat capacity of the metal. [2]

(e) An electron emitter must have _____ work function and _____ melting point. [2]

SECTION II (40 Marks)

Attempt any four questions from this Section

Question 5

(a) (i) A man having a box on his head, climbs up a slope and another man having an identical box walks the same distance on a levelled road. Who does more work against the force of gravity and why?

(ii) Two forces each of 5N act vertically upwards and downwards respectively on the two ends of a uniform metre rule which is placed at its mid-point as shown in the diagram. Determine the magnitude of the resultant moment of these forces about the midpoint. [4]
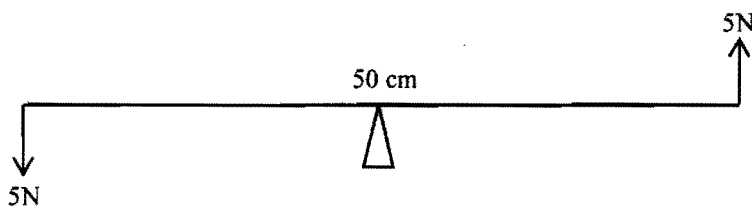
(b) (i) A body is thrown vertically upwards. Its velocity keeps on decreasing. What happens to its kinetic energy as its velocity becomes zero?

3

(ii)   Draw a diagram to show how a single pulley can be used so as to have its ideal M.A= 2.   [3]

(c)   Derive a relationship between mechanical advantage, velocity ratio and efficiency of a machine.   [3]

Question 6

(a)   (i)   Light passes through a rectangular glass slab and through a triangular glass prism. In what way does the direction of the two emergent beams differ and why?

      (ii)   Ranbir claims to have obtained an image twice the size of the object with a concave lens. Is he correct? Give a reason for your answer.   [4]

(b)   A lens forms an erect, magnified and virtual image of an object.

      (i)   Name the lens.

      (ii)   Draw a labelled ray diagram to show the image formation.   [3]

(c)   (i)   Define the power of a lens.

      (ii)   The lens mentioned in 6(b) above is of focal length 25cm. Calculate the power of the lens.   [3]

Question 7

(a)   The adjacent diagram shows three different modes of vibrations P, Q and R of the same string.

      (i)   Which vibration will produce a louder sound and why?

      (ii)   The sound of which string will have maximum shrillness?

      (iii)   State the ratio of wavelengths of P and R.

     [4]
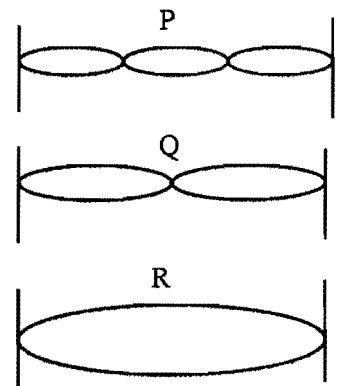
(b)   A type of electromagnetic wave has wavelength 50 Å.

      (i)   Name the wave.

      (ii)   What is the speed of the wave in vacuum?

      (iii)   State one use of this type of wave.   [3]

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(c) (i) State one important property of waves used for echo depth sounding.

(ii) A radar sends a signal to an aircraft at a distance of 30 km away and receives it back after 2×10^{-4} second. What is the speed of the signal? [3]

Question 8

(a) Two resistors of 4Ω and 6Ω are connected in parallel to a cell to draw 0.5A current from the cell.

(i) Draw a labelled circuit diagram showing the above arrangement.

(ii) Calculate the current in each resistor. [4]

(b) (i) What is an Ohmic resistor?

(ii) Two copper wires are of the same length, but one is thicker than the other.

(1) Which wire will have more resistance?

(2) Which wire will have more specific resistance? [3]

(c) (i) Two sets A and B, of three bulbs each, are glowing in two separate rooms. When one of the bulbs in set A is fused, the other two bulbs also cease to glow. But in set B, when one bulb fuses, the other two bulbs continue to glow. Explain why this phenomenon occurs.

(ii) Why do we prefer arrangements of Set B for house circuiting? [3]

Question 9

(a) Heat energy is supplied at a constant rate to 100g of ice at 0 °C. The ice is converted into water at 0° C in 2 minutes. How much time will be required to raise the temperature of water from 0 °C to 20 °C? [Given: sp. heat capacity of water = 4.2 J g^{-1} °C^{-1}, sp. latent heat of ice = 336 J g^{-1}]. [4]

(b) Specific heat capacity of substance A is 3.8 J g^{-1}K^{-1} whereas the Specific heat capacity of Substance B is 0.4 J g^{-1} K^{-1}.

(i) Which of the two is a good conductor of heat?

(ii) How is one led to the above conclusion?

(iii) If substances A and B are liquids then which one would be more useful in car radiators? [3]

(c) (i)   State any two measures to minimize the impact of global warming.

    (ii)   What is the Greenhouse effect?   [3]

Question 10

(a) (i)   Name two factors on which the magnitude of an induced e.m.f. in the secondary coil depends.

    (ii)   In the following diagram an arrow shows the motion of the coil towards the bar magnet.

           (1) State in which direction the current flows, A to B or B to A?

           (2) Name the law used to come to the conclusion.

                                                                              [4]
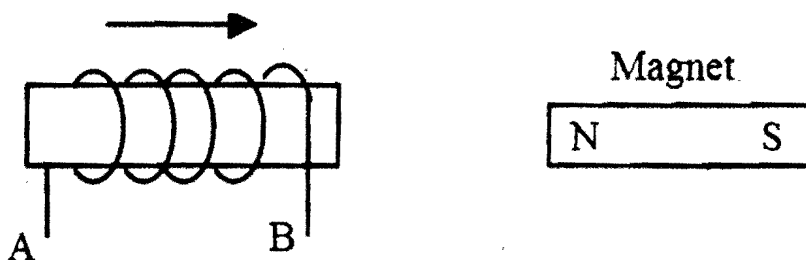
(b)   A nucleus $_{11}Na^{24}$ emits a beta particle to change into Magnesium (Mg)

    (i)   Write the symbolic equation for the process.

    (ii)   What are numbers 24 and 11 called?

    (iii) What is the general name of $^{24}_{12}Mg$ with respect to $^{24}_{11}Na$?   [3]

(c)   In a cathode ray tube state:

    (i)   the purpose of covering cathode by thorium and carbon.

    (ii)   the purpose of the fluorescent screen.

    (iii) how is it possible to increase the rate of emission of electrons.   [3]

CHEMISTRY

SCIENCE Paper – 2

(Two hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first 15 minutes.*

This time is to be spent in reading the Question Paper.

The time given at the head of this paper is the time allowed for writing the answers.

***Section I** is compulsory. Attempt **any four** questions from **Section II**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION I (40 Marks)

*Attempt **all** questions from this Section*

Question 1

(a) Choose the correct answer from the options given below:

(i) Ionisation Potential increases over a period from left to right because the:

(A) Atomic radius increases and nuclear charge increases

(B) Atomic radius decreases and nuclear charge decreases

(C) Atomic radius increases and nuclear charge decreases

(D) Atomic radius decreases and nuclear charge increases.

(ii) A compound X consists of only molecules. Hence X will have:

(A) A crystalline hard structure

(B) A low melting point and low boiling point

(C) An ionic bond

(D) A strong force of attraction between its molecules.

[3]

[4]

[3]

[3]

This Paper consists of 8 printed pages.

(iii) When fused lead bromide is electrolysed we observe:

    (A) a silver grey deposit at anode and a reddish brown deposit at cathode

    (B) a silver grey deposit at cathode and a reddish brown deposit at anode

    (C) a silver grey deposit at cathode and reddish brown fumes at anode

    (D) silver grey fumes at anode and reddish brown fumes at cathode.

(iv) The main ore used for the extraction of iron is:

    (A) Haematite

    (B) Calamine

    (C) Bauxite

    (D) Cryolite

(v) Heating an ore in a limited supply of air or in the absence of air at a temperature just below its melting point is known as:

    (A) smelting

    (B) ore dressing

    (C) calcination

    (D) bessemerisation

(vi) If an element A belongs to Period 3 and Group II then it will have,

    (A) 3 shells and 2 valence electrons

    (B) 2 shells and 3 valence electrons

    (C) 3 shells and 3 valence electrons

    (D) 2 shells and 2 valence electrons

(vii) The molecule containing a triple co-valent bond is:

    (A) ammonia

    (B) methane

    (C) water

    (D) nitrogen

(viii) The electrolyte used for electroplating an article with silver is:

    (A) silver nitrate solution

    (B) silver cyanide solution

    (C) sodium argentocyanide solution

    (D) nickel sulphate solution

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(ix) Aluminium powder is used in thermite welding because,

    (A) it is a strong reducing agent

    (B) it is a strong oxidising agent

    (C) it is corrosion resistant

    (D) it is a good conductor of heat.

(x) The I.U.P.A.C. name of acetylene is,

    (A) propane

    (B) propyne

    (C) ethene

    (D) ethyne.   [10]

(b) Fill in the blanks from the choices given within brackets:

(i)   The basicity of Acetic Acid is --------- (3, 1, 4)

(ii)   The compound formed when ethanol reacts with sodium is ---------- (sodium ethanoate, sodium ethoxide, sodium propanoate)

(iii) Quicklime is not used to dry HCl gas because--------- (CaO is alkaline, **CaO** is acidic, CaO is neutral)

(iv) Ammonia gas is collected by ---------- (an upward displacement of air, a downward displacement of water, a downward displacement of air)

(v)   Cold, dilute nitric acid reacts with copper to form --------- (Hydrogen, nitrogen dioxide, nitric oxide).   [5]

(c) Give one word or phrase for the following:

(i)   The ratio of the mass of a certain volume of gas to the mass of an equal volume of hydrogen under the same conditions of temperature and pressure.

(ii)   Formation of ions from molecules.

(iii) Electrolytic deposition of a superior metal on a baser metal.

(iv) Hydrocarbons containing a $\overset{\overset{\textstyle O}{\|}}{-C-}$ functional group.

(v)   The amount of energy released when an atom in the gaseous state accepts an electron to form an anion.   [5]

(d) Match the options A to E with the statements (i) to (v):

A	alkynes	(i)	No. of molecules in 22.4 dm^3 of carbon dioxide at s.t.p
B	alkane	(ii)	An element with electronic configuration 2,8,8,3
C	iron	(iii)	$C_n H_{2n+2}$
D	6.023×10^{23}	(iv)	$C_n H_{2n-2}$
E	metal	(v)	The metal that forms two types of ions

[5]

(e) Write balanced equations for the following:

(i) Action of heat on a mixture of copper and concentrated nitric acid.

(ii) Action of warm water on magnesium nitride.

(iii) Action of concentrated sulphuric acid on carbon.

(iv) Action of dilute hydrochloric acid on sodium sulphide.

(v) Preparation of ethane from sodium propionate. [5]

(f) Distinguish between the following pairs of compounds using the test given within brackets:

(i) Iron(II) sulphate and iron(III) sulphate (using ammonium hydroxide)

(ii) A lead salt and a zinc salt (using excess ammonium hydroxide)

(iii) Sodium nitrate and sodium sulphite (using dilute sulphuric acid)

(iv) Dilute sulphuric acid and dilute hydrochloric acid (using barium chloride solution)

(v) Ethane and ethene (using alkaline potassium permanganate solution) [5

(g) (i) Oxygen oxidises ethyne to carbon dioxide and water as shown by the equation:

$$2C_2H_2 + 5 O_2 \rightarrow 4CO_2 + 2H_2O$$

What volume of ethyne gas at s.t.p. is required to produce 8.4 dm^3 of carbon dioxide at s.t.p.?   [H = 1, C = 12, O = 16]

(ii) A compound made up of two elements X and Y has an empirical formula X_2Y. If the atomic weight of X is 10 and that of Y is 5 and the compound has a vapour density 25, find its molecular formula. [5]

SECTION II (40 Marks)

*Attempt **any four** questions from this Section*

Question 2

(a) State your observation in each of the following cases:

(i) When dilute hydrochloric acid is added to sodium carbonate crystals.

(ii) When excess sodium hydroxide is added to calcium nitrate solution.

(iii) At the cathode when acidified aqueous copper sulphate solution is electrolyzed with copper electrodes.

(iv) When calcium hydroxide is heated with ammonium chloride crystals.

(v) When moist starch iodide paper is introduced into chlorine gas. [5]

(b) Study the figure given below and answer the questions that follow:
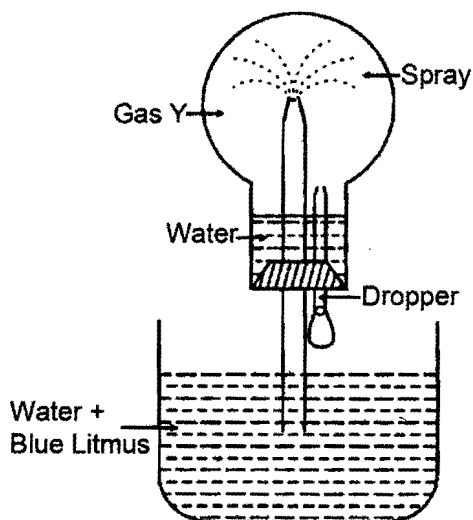
(i) Identify the gas Y.

(ii) What property of gas Y does this experiment demonstrate?

(iii) Name another gas which has the same property and can be demonstrated through this experiment. [3]

5

(c) (i) Name the other ion formed when ammonia dissolves in water.

(ii) Give one test that can be used to detect the presence of the ion produced. [2]

Question 3

(a) State the conditions required for the following reactions to take place:

    (i) Catalytic hydrogenation of ethyne.

    (ii) Preparation of ethyne from ethylene dibromide.

    (iii) Catalytic oxidation of ammonia to nitric oxide.

    (iv) Any two conditions for the conversion of sulphur dioxide to sulphur trioxide. [5]

(b) State the main components of the following alloys:

    (i) Brass.

    (ii) Duralumin.

    (iii) Bronze. [3]

(c) Give balanced equations for the following:

    (i) Laboratory preparation of nitric acid.

    (ii) Preparation of ethanol from monochloroethane and aq. sodium hydroxide. [2]

Question 4

(a) Give the structural formula of the following;

    (i) ethanol.

    (ii) 1-propanal

    (iii) ethanoic acid

    (iv) 1, 2, dichloroethane. [4]

(b) Draw the structure of the stable positive ion formed when an acid dissolves in water. [2]

(c) State the inference drawn from the following observations:

    (i) On carrying out the flame test with a salt P a brick red flame was obtained. What is the cation in P?

(ii) A gas Q turns moist lead acetate paper silvery black. Identify the gas Q.

[2]

(iii) pH of liquid R is 10. What kind of substance is R ?

(iv) Salt S is prepared by reacting dilute sulphuric acid with copper oxide. Identify S. [4]

Question 5

(a) Name the following:

(i) The property possessed by metals by which they can be beaten into sheets.

[5]

(ii) A compound added to lower the fusion temperature of electrolytic bath in the extraction of aluminium.

(iii) The ore of zinc containing its sulphide. [3]

(b) Give one equation each to show the following properties of sulphuric acid:

[3]

(i) Dehydrating property.

(ii) Acidic nature.

(iii) As a non-volatile acid. [3]

(c) Give balanced chemical equations to prepare the following salts:

[2]

(i) Lead sulphate from lead carbonate.

(ii) Sodium sulphate using dilute sulphuric acid.

(iii) Copper chloride using copper carbonate. [4]

Question 6

(a) (i) State Avogadro's Law.

(ii) A cylinder contains 68g of ammonia gas at s.t.p.

[4]

(1) What is the volume occupied by this gas?

(2) How many moles of ammonia are present in the cylinder?

[2]

(3) How many molecules of ammonia are present in the cylinder?

[N-14, H-1] [4]

(b) (i) Why do covalent compounds exist as gases, liquids or soft solids?

(ii) Which electrode: anode or cathode is the oxidising electrode? Why? [3]

(c)   Name the kind of particles present in:

    (i)   Sodium Hydroxide solution.

    (ii)   Carbonic acid.

    (iii)   Sugar solution.   [3]

Question 7

(a)   An element Z has atomic number 16. Answer the following questions on Z:

    (i)   State the period and group to which Z belongs.

    (ii)   Is Z a metal or a non-metal?

    (iii)   State the formula between Z and Hydrogen.

    (iv)   What kind of a compound is this?   [5]

(b)   M is a metal above hydrogen in the activity series and its oxide has the formula M_2O. This oxide when dissolved in water forms the corresponding hydroxide which is a good conductor of electricity. In the above context answer the following:

    (i)   What kind of combination exists between M and O?

    (ii)   How many electrons are there in the outermost shell of M?

    (iii)   Name the group to which M belongs.

    (iv)   State the reaction taking place at the cathode.

    (v)   Name the product at the anode.   [5]

HINDI

(Three hours)

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

This paper comprises of two Sections—Section A and Section B.

Attempt all the questions from Section A.

Attempt any four questions from Section B, answering at least one question each from the two books you have studied and any two other questions.

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A (40 Marks)

Attempt all questions

Question 1

Write a short composition in **Hindi** of approximately **250** words on any **one** of the following topics :—   [15]

निम्नलिखित विषयों में से किसी **एक** विषय पर **हिन्दी में** लगभग **250** शब्दों में संक्षिप्त लेख लिखिए :—

(i) भारतीय तथा पाश्चात्य संस्कृति का वर्णन करते हुए पाश्चात्य संस्कृति की कुछ अपनाने योग्य बातों पर प्रकाश डालिए।

(ii) आज खेलों में फैला भ्रष्टाचार एक नया ही रूप ले रहा है, विषय को स्पष्ट करते हुए, अपने प्रिय खेल का वर्णन कीजिए तथा जीवन में खेलों की आवश्यकता पर प्रकाश डालिए।

(iii) अपने जीवन में घटी उस घटना का वर्णन कीजिये जिसे याद करके, आप आज भी हँसे बिना नहीं रहते तथा इससे आपको क्या लाभ मिलता है।

(iv) एक मौलिक कहानी लिखिए जिसका आधार हो :—

"जाको राखे साइयाँ मार सके न कोय"।

This Paper consists of 12 printed pages.

(v) नीचे दिये गये चित्र को ध्यान से देखिए और चित्र को आधार बनाकर वर्णन कीजिए अथवा कहानी लिखिए जिसका सीधा व स्पष्ट सम्बन्ध चित्र से होना चाहिए।

Question 2

Write a letter in **Hindi** in approximately **120** words on any **one** of the topics given below :—

निम्नलिखित में से किसी **एक** विषय पर **हिन्दी** में लगभग **120** शब्दों में पत्र लिखिये :—

(i) आप किसी स्थान विशेष की यात्रा करना चाहते हैं। उस स्थान की जानकारी प्राप्त करने के लिए, उस क्षेत्र के पर्यटन विभाग के अधिकारी को पत्र लिख कर पूछताछ कीजिये।

(ii) आपका भाई अपना अधिकांश समय मोबाइल फोन के उपयोग में बिताता है। मोबाइल फोन के अधिक उपयोग करने से होने वाली हानियों का उल्लेख करते हुए, उसे पत्र लिखिए।

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible :—

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे प्रश्नों के उत्तर **हिन्दी** में लिखिए। उत्तर यथासंभव आपके अपने शब्दों में होने चाहिएँ :—

महान रसायनशास्त्री आचार्य नागार्जुन को अपनी प्रयोगशाला के लिये दो सहायकों की आवश्यकता थी। अनेक युवक उनके पास आये और निवेदन किया कि वे उन्हें अपने सहायक के रूप में नियुक्त कर लें। लेकिन परीक्षा लेने पर सभी प्रत्याशी अयोग्य साबित हुए। अंत में आचार्य निराश हो गए। उनकी निराशा का कारण यह था कि युवकों में रसायनशास्त्र के ज्ञाता तो बहुत थे और अपने विषय से परिचित भी, लेकिन एक रसायनशास्त्री के लिए जो एक पवित्र ध्येय होता है, उसका सभी में अभाव था। प्रत्याशियों में से किसी को अपने वेतन की चिंता थी, किसी को अपने परिवार की, तो किसी को अपना भविष्य उज्ज्वल बनाना था। पर आचार्य नागार्जुन को ऐसे सहायक की आवश्यकता नहीं थी। उनके मन और विचार में कुछ और ही था। निराश होकर उन्होंने सहायक की आवश्यकता होते हुए भी स्वयं ही सारा कार्य करने का निश्चय कर लिया।

कुछ दिन बाद ही दो युवक आचार्य के पास आये। उन्होंने उनसे निवेदन किया कि वे उन्हें अपना सहायक नियुक्त कर लें। आचार्य ने पहले तो उन्हें लौटा देना चाहा, लेकिन युवकों के अधिक आग्रह पर उन्होंने उनकी परीक्षा लेने का निश्चय किया। आचार्य ने दोनों युवकों को एक पदार्थ देकर दो दिन के भीतर ही उसका रसायन तैयार कर लाने को कहा। दोनों युवक पदार्थ लेकर अपने घर लौट गए।

दो दिन बाद एक युवक रसायन तैयार करके सुबह-सुबह ही उनके पास पहुँचा और रसायन का पात्र उन्हें देते हुए बोला "लीजिए आचार्य जी, रसायन तैयार है"। रसायन के पात्र की ओर बिना देखे ही आचार्य ने प्रश्न किया, "तो रसायन तैयार कर लिया तुमने ?"

[7] रसायन का पात्र एक ओर रखते हुए युवक ने कहा, "जी हाँ।" आचार्य ने दूसरा प्रश्न किया, "रसायन तैयार करते समय किसी भी प्रकार की कोई बाधा तो उपस्थित नहीं हुई ?" युवक ने सकुचाते हुए उत्तर दिया, "बाधायें तो बहुत आईं थीं, लेकिन मैंने किसी भी बाधा की चिंता किये बिना अपना कार्य चालू ही रखा तथा रसायन तैयार कर लिया। यदि मैं बाधाओं में उलझ गया होता, तो रसायन तैयार हो ही नहीं सकता था। एक ओर तो पिता के पेट में भयंकर शूल था, दूसरी ओर मेरी माता ज्वर से पीड़ित थी। ऊपर से मेरा छोटा भाई टांग तुड़वाकर पीड़ा से कराह रहा था। परन्तु ये बातें मुझे रसायन बनाने से विचलित नहीं कर सकीं।"

तभी दूसरा युवक खाली हाथ आकर वहाँ खड़ा हो गया। आचार्य जी ने उससे पूछा, "रसायन कहाँ है ?" युवक ने झिझकते हुए उत्तर दिया, "आचार्यजी, मैं क्षमा चाहता हूँ। मैं रसायन तैयार नहीं कर सका क्योंकि जाते समय मार्ग में एक वृद्ध व्यक्ति मिल गया था। वह एक सड़क दुर्घटना में घायल हो गया था। मेरा सारा समय उसकी सेवा में ही व्यतीत हो गया।"

आचार्य ने पहले युवक से कहा, "तुम जा सकते हो। मुझे तुम्हारी आवश्यकता नहीं। रसायनशास्त्री यदि पीड़ा से कराहते हुए व्यक्ति की उपेक्षा करे, तो वह अपने शास्त्र में अपूर्ण है।" दूसरे व्यक्ति को उन्होंने अपना सहायक नियुक्त कर लिया। भविष्य में वही युवक उनका दायाँ हाथ बना और उन्हें अति प्रिय लगने लगा।

(i) आचार्य को कैसे सहायकों की आवश्यकता थी और क्यों ? [2]

(ii) आचार्य की निराशा का क्या कारण था ? निराश होकर उन्होंने क्या किया ? [2]

(iii) आचार्य ने दोनों युवकों की परीक्षा लेने का क्या उपाय सोचा तथा क्यों ? [2]

(iv) दूसरा युवक रसायन क्यों तैयार नहीं कर सका ? इससे उसके चरित्र का कौन-सा गुण स्पष्ट होता है ? [2]

(v) आचार्य ने अपना सहायक किसे और क्यों चुना ? [2]

Question 4

Answer the following according to the instructions given :—

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :—

(i) निम्नलिखित शब्दों के विशेषण बनाइए :— [1]

रसायन, नुकसान।

(ii) निम्नलिखित शब्दों में से किसी **एक** शब्द के **दो-दो** पर्यायवाची शब्द लिखिए :— [1]

बाधा, पीड़ा।

(iii) निम्नलिखित शब्दों में से किन्हीं **दो** शब्दों के विपरीतार्थक शब्द लिखिए :— [1]

अंत, पवित्र, निराशा, भविष्य।

(iv) भाववाचक संज्ञा बनाइए :— [1]

अतिथि, निपुण।

(v) निम्नलिखित मुहावरों में से किसी **एक** की सहायता से वाक्य बनाइए :— [1]

टका सा जवाब देना, सिक्का जमाना।

(vi) कोष्ठक में दिए गए वाक्यों में निर्देशानुसार परिवर्तन कीजिए :—

(a) अंत में आचार्य निराश हो गए। [1]

(आशा शब्द का प्रयोग कीजिये)

(b) वह मुझे अति प्रिय लगने लगा। [1]

(वाक्य को भविष्यत् काल में बदलिए)

(c) उसका कार्य प्रशंसा के योग्य था। [1]

(रेखांकित के स्थान पर एक शब्द का प्रयोग करते हुए वाक्य पुनः लिखिये)

[2]
[2]
[2]

[2]
[2]

[1]

[1]

[1]

[1]

SECTION B (40 Marks)

*Attempt **four** questions from this Section.*

*You must answer at least **one** question from each of the **two** books you*

*have studied and any **two** other questions.*

गद्य-संकलन

Question 5

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर **हिन्दी** में लिखिए :—

"चाचाजी वहाँ भी गया था, पूरे दिन लाइन में खड़ा रहने पर जब मेरी बारी आई तो अफसर बोला– "भाई, नाम तो लिख लेता हूँ पर जल्दी नौकरी पाने की कोई आशा मत करना'' ।

–भीड़ में खोया आदमी–

लेखक—लीलाधर शर्मा 'पर्वतीय'

(i) वक्ता का परिचय देते हुए बताइए कि यहाँ चाचाजी का संबोधन किसके लिए किया गया है ?   [2]

(ii) यहाँ किस कार्यालय की लाइन में खड़े होने की बात की जा रही है तथा क्यों ?   [2]

(iii) वक्ता की बातों से लेखक क्या सोचने पर विवश हो जाता है तथा क्यों ?   [3]

(iv) यह किस प्रकार का निबंध है तथा इस निबंध में देश की किस समस्या पर ध्यान आकर्षित किया गया है ? इससे देश को क्या नुक्सान हो रहा है ?   [3]

Question 6

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर **हिन्दी** में लिखिए :—

जब मेरा जन्म भी नहीं हुआ था, तब से वे इस स्कूल में शिक्षक का काम कर रहे हैं । वे तो स्थिर रहे हैं, परन्तु उनकी आयु उनकी तरह स्थिर नहीं रह सकी ।

–मेरे मास्टर साहब–

लेखक—चंद्रगुप्त विद्यालंकार

(i) यहाँ किस के विषय में बात की जा रही है ? उसका लेखक के साथ क्या संबंध है ?   [2]

(ii) मुख्याध्यापक के रूप में लेखक का विद्यालय में कैसा प्रभाव था ?   [2]

(iii) मुख्याध्यापक बनने के बाद भी लेखक अपने प्रिय मास्टर साहब के साथ किन-किन बातों का ध्यान रखते थे ? लेखक की नियुक्ति का मास्टर साहब पर क्या प्रभाव पड़ा ?   [3]

(iv) 'गुरु-शिष्य परम्परा' को वर्तमान समय ने किस प्रकार प्रभावित किया है ? 'गुरु-शिष्य परम्परा' के आदर्श रूप को बनाये रखने के लिए क्या उपाय किये जाने चाहिए ?   [3]

Question 7

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर हिन्दी में लिखिए :—

—यह माँ का झमेला ही रहेगा— उन्होंने फिर अंग्रेजी में अपनी स्त्री से कहा— कोई ढंग की बात हो तो, भी कोई कहे। अगर कहीं कोई उल्टी-सीधी बात हो गयी, चीफ़ को बुरा लगा, तो सारा मज़ा जाता रहेगा।

-चीफ की दावत-

लेखक—भीष्म साहनी

(i) वक्ता तथा श्रोता कौन है, वक्ता माँ को झमेला क्यों कह रहा है ?   [2]

(ii) श्रोता किस बात को लेकर चिंतित है, क्या उसका चिंतित होना उचित है ? तर्क सहित उत्तर दीजिए।   [2]

(iii) चीफ़ कौन है ? उसको घर में बुलाने का क्या उद्देश्य है ? उसके लिए क्या-क्या तैयारियाँ की जा रही हैं ?   [3]

(iv) प्रस्तुत कहानी के आधार पर सामाजिक जीवन की मूल्यहीनता व समाज में फैले भ्रष्टाचार का वर्णन कीजिए।   [3]

चन्द्रगुप्त विक्रमादित्य

लेखक—प्रकाश नगायच

Question 8

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और नीचे दिये गए प्रश्नों के उत्तर हिन्दी में लिखिए :—

"ठीक कहते हो कुमार ! समय की प्रतीक्षा करो, भगवान् महाकाल तुम्हारी सहायता करेंगे।''

(i) यहाँ कुमार शब्द का प्रयोग किसके लिए किया जा रहा है ? उसे समय की प्रतीक्षा क्यों करनी पड़ेगी ?   [2]

(ii) महाकाल भगवान सहायता करेंगे, यहाँ किसकी सहायता की बात की जा रही है ? इस सहायता की आवश्यकता क्यों पड़ रही है ?   [2]

(iii) इस समय कुमार की विवशता का क्या कारण है ? क्या उनका भय उचित था ?   [3]

(iv) रामगुप्त की काली करतूतों का वर्णन कीजिए।   [3]

Question 9

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर **हिन्दी** में लिखिए :—

"भारतीय कन्याएँ जीवन में पति का वरण केवल एक बार करती हैं, सो आप आज से दो वर्ष पहले ही कर चुकी हैं ...... और फिर रामगुप्त की दुर्बलता किसी से छिपी नहीं।''

(i) 'भारतीय कन्याएँ' से क्या तात्पर्य है ? उनकी कौन-सी विशेषताओं का वर्णन किया गया है ? [2]

(ii) किसने, किसका वरण किया था ? यह कार्य किसकी आज्ञा से हुआ और क्यों ? [2]

(iii) रामगुप्त कौन है ? यह किसका पति होने के योग्य नहीं है और क्यों ? समझाइए। [3]

(iv) शकराज कौन था ? उसने रामगुप्त की सेना को किस प्रकार सरलता से घेर लिया ? समझाइए। [3]

Question 10

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर **हिन्दी** में लिखिए :—

चंद्रगुप्त ने चौंककर पूछा और झल्लाहट-भरे स्वर में बोला — "जब विनाश काल आता है, बुद्धि नष्ट हो जाती है।''

(i) चंद्रगुप्त कौन है ? वह किससे तथा कब बात कर रहा है ? [2]

(ii) चंद्रगुप्त ऐसा क्यों कहता है कि विनाश काल में बुद्धि नष्ट हो जाती है। यहाँ किसकी बुद्धि नष्ट हो गयी है ? [2]

(iii) ऐसा क्या हो रहा था कि विनाश तक की बात सोची जा रही थी ? [3]

(iv) प्रस्तुत उपन्यास के आधार पर सिद्ध कीजिए कि सिंहासन पर बैठने का अधिकार केवल योग्य और वीर पुरुष को ही होता है। [3]

एकांकी सुमन

Question 11

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर **हिन्दी** में लिखिए :—

"यह तो अपनी-अपनी समझ की बात है। मैं तो कहूँगा दोनों ने अक्लमंदी की। लड़की वालों ने भी और लड़के वालों ने भी। इस महँगाई के ज़माने में सैकड़ों की बारात लेकर चलना अक्लमंदी की बात नहीं है।"

-मेल मिलाप-

लेखक—देवराज दिनेश

[2]

[2]   (i) वक्ता कौन है ? वह कैसा व्यक्ति है ?   [2]

[3]   (ii) वक्ता के कथन के उत्तर में श्रोता ने क्या कहा तथा क्यों ?   [2]

   (iii) यहाँ किस 'अक्लमंदी' की बात की जा रही है ? इसके माध्यम से हमें क्या सीख मिलती है ?   [3]

[3]

   (iv) 'मेल-मिलाप' ही स्वस्थ समाज की रीढ़ है" — इस विषय पर एक अनुच्छेद लिखिये।   [3]

Question 12

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर **हिन्दी** में लिखिए :—

"महाराज सब बंदोबस्त आप ही देखते हैं। सारी फ़ौज को उतारकर खुद नाव पकड़ेंगे। इस उमर में और यह हिम्मत ! सुना है, अस्सी बरस के हो चुके।"

-विजय की वेला-

लेखक—जगदीश चंद्र माथुर

[2]

[2]   (i) प्रस्तुत कथन के वक्ता तथा श्रोता का परिचय दीजिए।   [2]

[3]   (ii) महाराज कौन थे ? युद्ध के बारे में उनके क्या विचार थे ?   [2]

   (iii) प्रस्तुत एकांकी का उद्देश्य स्पष्ट कीजिये।   [3]

[3]   (iv) प्रस्तुत एकांकी की पृष्ठभूमि स्पष्ट करते हुए, इसकी मुख्य विशेषता बताइए।   [3]

Question 13

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर **हिन्दी** में लिखिए :—

"वहाँ नहीं, आपको मेरे साथ चलना है। आपको जनता के पास चलना है। जनता बड़ी उत्तेजना में है विद्यार्थी पीछे रह गये, दूसरे समाजद्रोही तत्व आगे आ गए हैं और विजय ने गोली चलाने से इनकार कर दिया है।"

-सीमा रेखा-

लेखक—विष्णु प्रभाकर

(i)   वक्ता तथा श्रोता का परिचय दीजिए।   [2]

(ii) श्रोता कहाँ जा रहा था एवं क्यों ?   [2]

(iii) सीमा रेखा एकांकी के शीर्षक का औचित्य स्पष्ट कीजिये।   [3]

(iv) पारिवारिक सम्बन्धों की अपेक्षा कर्तव्य-पालन अधिक महत्वपूर्ण होता है — प्रस्तुत कथन
      को आधार बनाकर एक अनुच्छेद लिखिए।   [3]

काव्य-चन्द्रिका

Question 14

Read the extract given below and answer in **Hindi** the questions that follow :—
निम्नलिखित पद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर **हिन्दी** में लिखिए :—

ऐसी वाणी बोलिए, मन का आपा खोइ।
अपना तन शीतल करे, औरन को सुख होइ।।
कस्तूरी कुंडलि बसे, मृग ढूँढे बन माँहि।
ऐसे घटि-घटि राम हैं, दुनियाँ देखे नाहि।।
तिनका कबहुँ न निन्दिए, जो पायन तर होय।
कबहुँक उड़ि आँखिन परै, पीर घनेरी होय।।

-नीति के दोहे-
कवि—कबीर दास

(i)   कवि कैसी बोली बोलने के लिए प्रेरित कर रहे हैं, इससे क्या लाभ होता है ?   [2]

(ii) कस्तूरी मृग के माध्यम से कवि मानव मन के किस अज्ञान का वर्णन कर रहे हैं ?
      स्पष्ट कीजिये।   [2]

(iii) तिनके जैसी छोटी चीज़ का निरादर क्यों नहीं करना चाहिए ? ऐसा करने से क्या
      हानि होती है ?   [3]

(iv) कबीरदास जी किस भक्ति-धारा के कवि थे ? उनके विषय में एक अनुच्छेद लिखिये।   [3]

Question 15

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर हिन्दी में लिखिए :—

> क्षुधार्त रंतिदेव ने दिया करस्थ थाल भी,
>
> तथा दधीचि ने दिया परार्थ अस्थिजाल भी।
>
> उशीनर क्षितीश ने स्वमांस दान भी किया,
>
> सहर्ष वीर कर्ण ने शरीर चर्म भी दिया।
>
> अनित्य देह के लिए अनादि जीव क्या डरे,
>
> वही मनुष्य है कि जो मनुष्य के लिए मरे।

-मानवता-

कवि—मैथिलीशरण गुप्त

(i) यह कविता कहाँ से ली गयी है ? इसके माध्यम से कवि ने किन जीवन-मूल्यों का वर्णन किया है ?   [2]

(ii) 'दधीचि' कौन थे ? उन्होंने मानवता का परिचय किस प्रकार दिया था ?   [2]

(iii) ''अनित्य देह के लिए अनादि जीव क्या डरे'' — पंक्ति का भाव स्पष्ट कीजिये।   [3]

(iv) 'मानवता' से आप क्या समझते हैं ? इस कविता से आपको क्या प्रेरणा मिली ?   [3]

Question 16

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे दिये गए प्रश्नों के उत्तर हिन्दी में लिखिए :—

> तू तरुण देश से पूछ, अरे,
>
> गूँजा यह कैसा ध्वंस-राग ?
>
> अंबुधि-अंतस्तल बीच छिपी
>
> यह सुलग रही है कौन आग ?
>
> प्राची के प्रांगण-बीच देख,
>
> जल रहा स्वर्ण-युग-अग्नि-ज्वाल।
>
> तू सिंहनाद कर जाग, तपी।
>
> मेरे नगपति ! मेरे विशाल।

-हिमालय-

कवि—रामधारी सिंह दिनकर

(i) 'तरुण देश' का सन्दर्भ स्पष्ट करते हुए लिखिये कि यहाँ किस 'ध्वंस राग' की बात की जा रही है।   [2]

T14 051   11   Turn over

(ii) 'जल रहा स्वर्ण-युग-अग्नि-ज्वाल' का अभिप्राय स्पष्ट कीजिए। [2]

(iii) हिमालय का भारत की सभ्यता और संस्कृति से क्या सम्बन्ध है ? हिमालय को सुरक्षित रखना आज के युग की प्राथमिकता क्यों है ? [3]

(iv) शब्दार्थ दीजिए :— [3]

सिंहनाद, अंबुधि, ध्वंस, प्राची, सुलगना, स्वर्ण।

BIOLOGY

SCIENCE Paper – 3

(Two hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first·15 minutes.*

This time is to be spent in reading the Question Paper.

The time given at the head of this Paper is the time allowed for writing the answers.

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*Attempt **all** questions from **Section I** and **any four** questions from **Section II**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION I (40 Marks)

*Attempt **all** questions from this Section*

Question 1

(a) Name the following:

 (i) The part of the brain associated with memory.

 (ii) The ear ossicle which is attached to the tympanum.

 (iii) The type of gene, which in the presence of a contrasting allele is not expressed.

 (iv) The hormone secreted by islets of langerhans.

 (v) The process of conversion of ADP into ATP during photosynthesis. [5]

(b) State the main function of the following:

 (i) Cerebrospinal fluid.

 (ii) Eustachian tube.

 (iii) Suspensory ligament of the eye.

 (iv) Sperm duct.

 (v) Lenticels. [5]

(c) Copy and complete the following by filling in the blanks 1 to 5 with appropriate words:

 The human female gonads are ovaries. A maturing egg in the ovary is present in a sac of cells called _____(1). As the egg grows larger, the follicle enlarges and gets filled with a fluid and is now called the _____(2) follicle. The process of releasing the egg from the ovary is called

---

This paper consists of 10 printed pages.

Turn Over

_____(3). The ovum is picked up by the oviducal funnel and fertilization takes place in the _____(4). In about a week the blastocyst gets fixed in the endometrium of the uterus and this process is called _____(5). [5]

(d) Given below are six sets with four terms each. In each set one term is odd and cannot be grouped in the same category to which the other three belong. Identify the odd one in each set and name the category to which the remaining three belong. The first one has been done as an example.

Example: Calyx, Corolla, Stamens, Midrib

Odd term: midrib

Category: Parts of a flower.

(i) Haemoglobin, Glucagon, Iodopsin, Rhodopsin.

(ii) Urethra, Uterus, Urinary bladder, Ureter.

(iii) Transpiration, Photosynthesis, Phagocytosis, Guttation.

(iv) Cyton, Photon, Axon, Dendron.

(v) Oxytocin, Insulin, Prolactin, Progesterone. [5]

(e) The figure given below represents an experimental set up with a weighing machine to demonstrate a particular process in plants. The experimental set up was placed in bright sunlight. Study the diagram and answer the following questions:
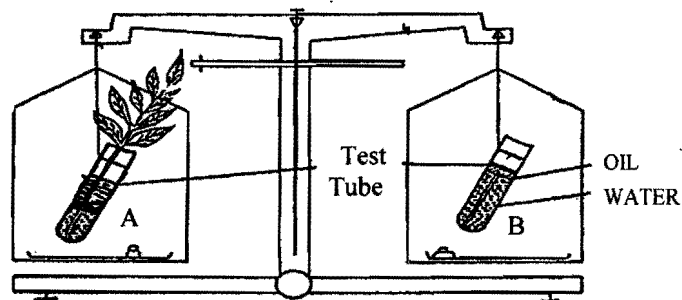
(i) Name the process intended for study.

(ii) Define the above mentioned process.

(iii) When the weight of the test tube (A & B) is taken before and after the experiment, what is observed? Give reasons to justify your observation in A & B.

(iv) What is the purpose of keeping the test tube B in the experimental set up? [5]

(f) Match the items given in Column A with the most appropriate ones in Column B and rewrite the correct matching pairs from Column A and Column B:

Sl. No.	Column A		Column B
1.	Pituitary gland	a.	Testosterone
2.	Sulphur dioxide	b.	Calcium
3.	Seminiferous tubules	c.	Growth hormone
4.	Clotting of blood	d.	Acid rain
5.	Guttation	e.	Sperms
		f.	Global warming
		g.	Magnesium
		h.	Hydathodes

[5]

(g) Choose the correct answer from the options given below:

(i) Cretinism and Myxoedema are due to:

A. Hyper secretion of thyroxin

B. Hyper secretion of growth hormone.

C. Hyposecretion of thyroxin.

D. Hyposecretion of growth hormone.

(ii) Which of the following is not a natural reflex action ?

A. Knee-jerk.

B. Blinking of eyes due to strong light.

C. Salivation at the sight of food.

D. Sneezing when any irritant enters the nose.

(iii) After mitotic cell division, a female human cell will have:

A. 44 + xx chromosome.

B. 44 + xy chromosome.

C. 22 + x chromosome.

D. 22 + y chromosome.

(iv)   The antibiotic penicillin is obtained from:

    A.   Protozoan.

    B.   Bacteria.

    C.   Virus.

    D.   Fungus.

(v)   The site of maturation of human sperms is the:

    A.   Seminiferous tubule.

    B.   Interstitial cells.

    C.   Epididymis.

    D.   Prostate gland.   [5]

(h)   State the exact location of the following:

    (i)   Tricuspid valve.

    (ii)   Amnion.

    (iii)   Yellow spot.

    (iv)   Seminal vesicle

    (v)   Adrenal gland.   [5]

SECTION II (40 Marks)

Attempt any four questions from this Section

Question 2

(a)   Differentiate between the following pairs on the basis of what is mentioned within brackets:

    (i)   Spinal nerves and Cranial nerves (Number of nerves).

    (ii)   Near vision and Distant Vision (shape of the eye lens)

    (iii)   Corpus callosum and Corpus luteum. (function).

    (iv)   Turgor pressure and wall pressure. (Explain)

    (v)   Disinfectant and Antiseptic (Definition).   [5]

(b)   The diagram below represents the simplified pathway of the circulation of blood. Study the same and answer the questions that follow:
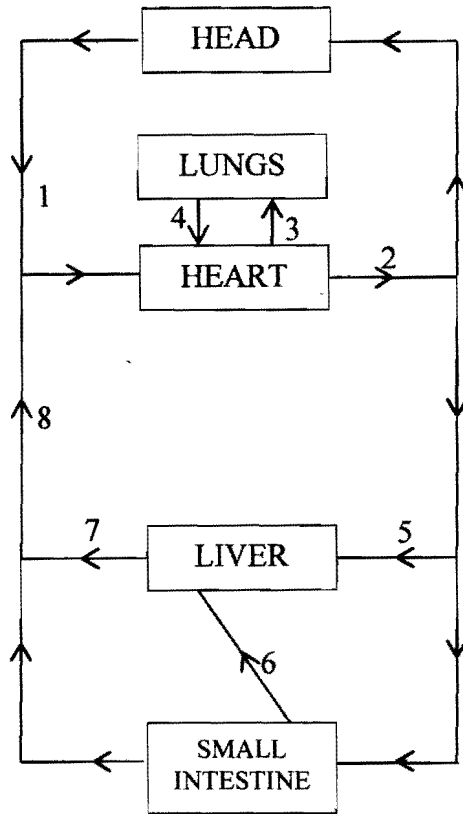

(i)   Name the blood vessels labelled 1 and 2.

(ii)   State the function of blood vessels labelled 5 and 8.

(iii)   What is the importance of the blood vessel labelled 6?

(iv)   Which blood vessel will contain a high amount of glucose and amino acids after a meal?

(v)   Draw a diagram of the different blood cells as seen in a smear of human blood.   [5]

Question 3

(a)   A candidate in order to study the process of osmosis has taken 3 potato cubes and put them in 3 different beakers containing 3 different solutions. After 24 hours, in the first beaker the potato cube increased in size, in the second beaker

the potato cube decreased in size and in the third beaker there was no change in the size of the potato cube. The following diagram shows the result of the same experiment:

| SIZE INCREASED | SIZE DECREASED | SIZE REMAINS SAME |
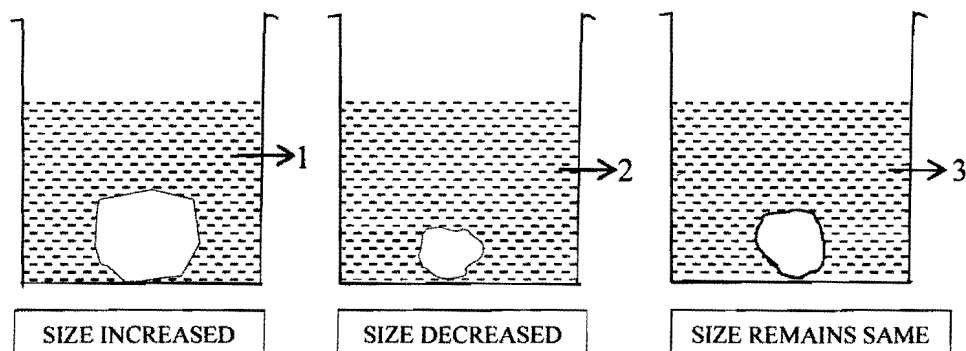
(i) Give the technical terms of the solutions used in beakers, 1, 2 and 3.

(ii) In beaker 3 the size of the potato cube remains the same. Explain the reason in brief.

(iii) Write the specific feature of the cell sap of root hairs which helps in absorption of water.

(iv) What is osmosis?

(v) How does a cell wall and a cell membrane differ in their permeability?   [5]

(b) A potted plant was taken in order to prove a factor necessary for photosynthesis. The potted plant was kept in the dark for 24 hours. One of the leaves was covered with black paper in the centre. The potted plant was then placed in sunlight for a few hours.

(i) What aspect of photosynthesis was being tested?

(ii) Why was the plant placed in the dark before beginning the experiment?

(iii) During the starch test why was the leaf -

   (1) boiled in water

   (2) boiled in methylated spirit.

(iv) Write a balanced chemical equation to represent the process of photosynthesis.

(v) Draw a neat diagram of a chloroplast and label its parts.   [5]

Question 4

(a)   The diagram given below is a representation of a certain phenomenon pertaining to the nervous system. Study the diagram and answer the following questions:
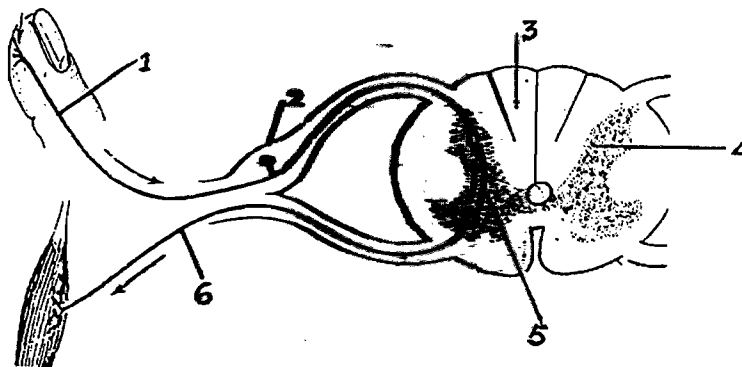
(i)   Name the phenomenon that is being depicted.

(ii)   Give the technical term for the point of contact between the two nerve cells.

(iii) Name the parts 1, 2, 3 and 4.

(iv)   Write the functions of parts 5 and 6.

(v)   How does the arrangement of neurons in the spinal cord differ from that of the brain?   [5]

(b)   Give scientific reasons for the following statements:

(i)   Use of C.F.C is banned in many countries.

(ii)   We cannot distinguish colours in moonlight.

(iii) Balsam plants wilt during midday even if the soil is well watered.

(iv)   Carbon monoxide is highly dangerous when inhaled.

(v)   A person after consuming alcohol walks clumsily.   [5]

Question 5

(a)   Given below is a diagram representing a stage during mitotic cell division. Study it carefully and answer the questions that follow:
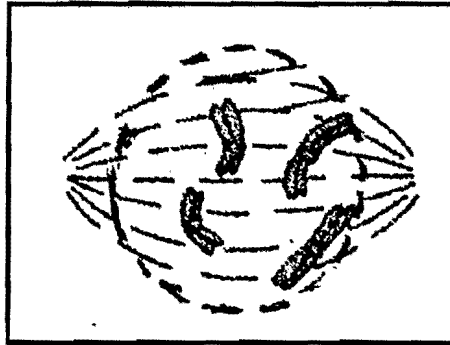
   (i)   Is it a plant cell or an animal cell? Give a reason to support your answer.

   (ii)   Identify the stage shown.

   (iii)   Name the stage that follows the one shown here. How is that stage identified?

   (iv)   How will you differentiate between mitosis and meiosis on the basis of the chromosome number in the daughter cells?

   (v)   Draw a duplicated chromosome and label its parts.   [5]

(b)   (i)   . Name the disease for which the following types of vaccines are given:

           (1)   Salk's Vaccine.

           (2)   B.C.G.

   (ii)   Give one example of each of the following:

           (1)   A water pollutant.

           (2)   An aquatic plant used in the lab to demonstrate O_2 liberation during photosynthesis.

           (3)   An antibiotic.

           (4)   A nitrogenous base in DNA.

   (iii)   Expand the following biological abbreviations:

           (1)   ATP

           (2)   TSH

           (3)   DPT

           (4)   DNA   [5]

Question 6

(a) The given diagram represents a nephron and its blood supply. Study the diagram and answer the following questions:
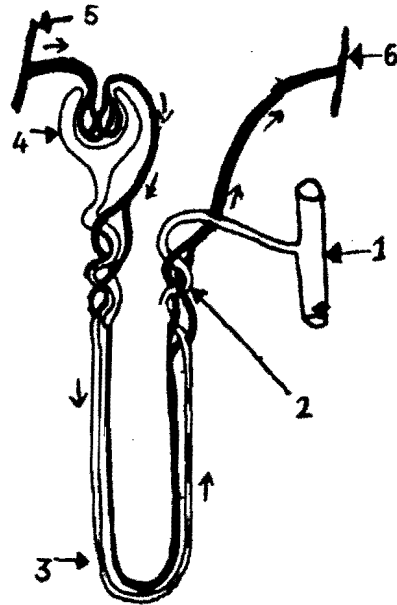
(i) Label parts 1, 2, 3 and 4.

(ii) State the reason for the high hydrostatic pressure in the glomerulus.

(iii) Name the blood vessel which contains the least amount of urea in this diagram.

(iv) Name the two main stages of urine formation.

(v) Name the part of the nephron which lies in the renal medulla. [5]

(b) Briefly explain the following terms:

(i) monohybrid cross.

(ii) / Biomedical waste.

(iii) Innate immunity.

(iv) Diapedesis.

(v) Hormones. [5]

Question 7

(a) (i) State any two harmful effects of noise pollution on human health.

(ii) Categorize the following activities as per the functions of the Red Cross Society and the WHO:

(1) To suggest quarantine measures to prevent spread of disease.

(2) Humanitarian services to victims of war.

(3) To educate people in accident prevention.

(4) To promote projects for research on disease.

(iii) Write any two major reasons for the population explosion in India.

(iv) State Mendel's Law of segregation. [5]

(b) Give technical terms for the following:

(i) A method of contraception in which the sperm duct is cut and ligated.

(ii) Statistical study of human population.

(iii) The protective covering of the heart.

(iv) A sudden heritable change in the gene.

(v) Repeated units of DNA molecule.

(vi) The fluid portion of blood.

(vii) The nerve that transmits impulses from the ear to the brain.

(viii) Group of hormones which influence other endocrine glands to produce hormones.

(ix) Thin walled sac of skin that covers the testes.

(x) The permanent stoppage of the menstrual cycle in a woman aged 50 years. [5]

T14 523

COMMERCIAL STUDIES
(Two Hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first 15 minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

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*Attempt **all** questions from **Section A** and **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A (40 Marks)

*Attempt **all** questions from this Section*

Question 1

Distinguish between:

(a)	*Formal Communication* and *Informal Communication.*	[2]
(b)	*A Product* and a *Service.*	[2]
(c)	*Standardisation* and *Grading.*	[2]
(d)	*Direct Labour Cost* and *Indirect Labour Cost.*	[2]
(e)	A *Warehouse Receipt* and a *Warehouse warrant.*	[2]

Question 2

(a)	State any *two* advantages of branding.	[2]
(b)	How do group discussions help in the selection process of suitable candidates for employment?	[2]
(c)	State *two* limitations of a budget.	[2]
(d)	What is meant by an 'Overdraft' facility given by a Commercial Bank?	[2]
(e)	Mention any *two* objectives of Training.	[2]

Question 3

(a)	State any *two* disadvantages of Rail Transport.	[2]
(b)	State any *two* characteristics of an Ideal Warehouse.	[2]
(c)	What is a Provident Fund Scheme?	[2]
(d)	What is meant by the term 'Revenue Expenditure'?	[2]
(e)	How does a 'Status barrier' affect Effective Communication?	[2]

This paper consists of 3 printed pages and 1 blank page.

Question 4

(a) Briefly explain any *two* elements of a Promotion Mix.   [2]

(b) Give *two* reasons for workers joining a Trade Union.   [2]

(c) What is meant by Orientation or Induction Training?   [2]

(d) What is 'Discounting of a Bill of Exchange'?   [2]

(e) Explain 'contribution' as a principle of an Insurance contract.   [2]

SECTION B (40 Marks)

*Attempt **any four** questions from this Section*

Question 5

(a) Write any *five* expectations of the General Public or Society from a
     Business Enterprise.   [5]

(b) State any *five* objectives of marketing.   [5]

Question 6

(a) State *five* benefits of Advertising to manufactures/dealers.   [5]

(b) What is meant by 'Sustainable Development'? Explain any *two* examples
     of sustainable use of resources.   [5]

Question 7

(a) Explain the benefits of taking an Insurance Policy.   [5]

(b) Explain any *five* objectives of Industrial Relations.   [5]

Question 8

(a) Explain any *two* types of deposit accounts.   [5]

(b) Explain *five* main characteristics of Communication.   [5]

Question 9

(a) Briefly explain any *five* utilities of a budget.   [5]

(b) State any *five* tools or techniques of Brand Promotion.   [5]

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Question 10

The following is the Trial Balance of Ron Trading Co. on 31st March 2013. [10]

Particulars	L.F	Debit (₹)	Credit (₹)
Machinery		1,02,000	
Land and Buildings		8,60,000	
Investments		70,000	
Bad debts		3,000	
Sundry debtors		40,000	
Purchases		3,09,800	
Stock on 1st April, 2012		23,000	
Interest		3,500	
Bills Payable			6,750
Sundry Creditors			80,000
Travelling Expenses		700	
Trade Expenses		5,000	
Discount		1,250	2,625
Purchases Returns			9,850
Sales Returns		6,775	
Bill Receivable		2,275	
Capital			10,25,000
Sales			3,75,775
Mobile Phone Bills {Official}		6,000	
Postage		1,200	
Wages and Salaries		12,000	
Salaries and wages		51,000	
Carriage		2,500	
		15,00,000	15,00,000

The closing stock was valued at ₹9,000. Prepare a Trading and Profit and Loss Account and the Balance Sheet as on 31st March, 2013.

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